HYDROGEOLOGICAL ASSESSMENT
HIGHLAND PARK CEMETERY VISITATION CENTER
2037 MCGEE SIDE ROAD
OTTAWA, ONTARIO

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REPORT ON

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HIGHLAND PARK CEMETERY VISITATION CENTER
2037 MCGEE SIDE ROAD
OTTAWA, ONTARIO

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1.0 INTRODUCTION

1.1 Background and Project Scope

Houle Chevrier Engineering Ltd. (HCEL) was retained by Novatech Engineering Consultants Ltd. on behalf of Pinecrest Remembrance Services Ltd. to conduct a hydrogeological investigation for a new water supply well to service a proposed visitation centre to be constructed at the Highland Park Cemetery located at 2037 McGee Side Road on Lot 11, Concession 2 in Huntley Township, Ottawa, Ontario.

The Highland Park Cemetery (hereafter referred to as 'the subject site') is comprised of a 48.6 hectare (120 acre) parcel of land to the northeast of the intersection of John Cavanaugh Drive and McGee Side Road (see Site Location Map, Figure 1). One small administration building is currently located in the southeast portion of the subject site. The existing administration building is serviced by a private drinking water well and an onsite septic disposal system.

The proposed development will consist of the construction of a new visitation centre building, approximately 1,400 square metres in size that will be serviced with on-site septic disposal system and private water supply well. The visitation centre building will be slab on grade construction and will be situated within the ringed roadway at the centre of the site (see Figure 1).

The objectives of this investigation are as follows:

- To investigate the potential quantity and quality of groundwater available from a drilled test well on the subject site for potential domestic supply;
- To assess the potential for impact on the receiving aquifer(s) and any nearby surface water features from on-site septic disposal systems. This will include predictions on nitrate concentrations at the property boundaries.

1.2 Land Use in the Vicinity of the Site

Land use within 500 metres of the drinking water well was reviewed for concerns related to groundwater quality. Land use in the vicinity of the site consists of agricultural land use, scattered rural residential and industrial/commercial land use. Specific land uses near the site boundaries are summarized below:

Site Boundary	Land Use
Southwest	• Industrial/commercial land use, including one (1) church (institutional land use).
Northwest	• Agricultural land use.
Northeast	• Agricultural land use, including one (1) rural farm;
Southeast	• McGee Side Road, followed by agricultural land use, fragment woodlands and scattered rural residential.

Potential impacts to groundwater quality from adjacent land within 500 metres of the subject site boundary are not anticipated. No large scale water takings capable of causing adverse impacts to groundwater quantity were identified within 500 metres of the onsite test well.

A Phase I Environmental Site Assessment (ESA), entitled "Phase I Environmental Site Assessment, Highland Park Cemetery, 2037 McGee Side Road, Ottawa, Ontario" and dated February 2010, was prepared by Houle Chevrier Engineering Ltd. for the subject site. The Phase I ESA indicated that no actual or potential issues of environmental concern were identified at the subject site or vicinity. Based on the results of the Phase I ESA, no further environmental investigation was recommended.

1.3 Overview of Local Geological Setting

1.3.1 Topography

The topography of the site is relatively flat. Topographic mapping data, provided by Novatech Engineering Consultants Ltd., indicates that the topography in the vicinity of the proposed visitation center building generally slopes downward from the south to the north.

1.3.2 Drainage

The majority of the site appears to be well drained based on observations made during site visits. The drainage of the subject site is assumed to be influenced by the natural topography of the site and is anticipated to be generally to the north based on topographic mapping. A drainage ditch runs along the southeastern boundary of the subject site along McGee Side Road.

1.3.3 Regional Surficial and Bedrock Geology

Surficial geology maps (Urban Geology of the National Capital Region) of the area indicate that the overburden deposits on the majority of the site range in thickness from about 1 to 10 metres. The overburden thickness in the immediate vicinity in the well is indicated to range from 3 to 5 metres. The surficial geology of the subject site is indicated to consist of sensitive silty clay of marine origin and/or glacial till. Surficial deposits in areas surrounding the subject site are indicated to be offshore marine sediments consisting of marine deposits composed of silt and clay and nearshore marine sediments composed of sands or sands and gravel.

Bedrock geology maps indicate that the surficial deposits on the site are underlain by interbedded limestone and shale of the Verulam Formation. Bedrock aquifer maps indicate that the Verulam Formation is capable of supplying sufficient water for domestic use. The water is indicated to be of variable quality and may be sulphurous and saline.

Reference information for the Urban Geology of the National Capital Region is provided in Section 7.0 and Appendix A of this report.

2.0 GROUNDWATER IMPACT ASSESSMENT

2.1 Field Procedure

A geotechnical investigation, entitled "Geotechnical Investigation, Highland Park Cemetery Visitation Centre, 2037 McGee Side Road, Ottawa, Ontario" and dated March 2010, was prepared by Houle Chevrier Engineering Ltd. to determine the subsurface conditions at the subject site.

The field work for the geotechnical investigation was carried out between February 8 and 9, 2010. During that time, six (6) boreholes, numbered 101 to 106, inclusive, were advanced in the area of the proposed building to depths ranging from 3.8 to 4.5 metres. In addition, two (2) test pits, numbered 101 and 102, were advanced in the area of the septic leaching bed; and, seven (7) test pits, numbered 103 to 109, were excavated in the area of the proposed parking lot and access roadways. Samples of the groundwater were recovered from boreholes 102 and 105 on June 3, 2010 and were submitted to Exova Accutest laboratory for analysis of nitrate concentrations.

The approximate locations of the boreholes and test pits advanced as part of the geotechnical investigation are shown on the Test Well, Borehole and Test Pit Location Plan, Figure 2. An aerial photograph of the overall area of the subject site is provided on the Site Plan, Figure 3. Descriptions of the subsurface conditions logged in the boreholes and test pits are provided in the geotechnical report.

2.2 Soil and Groundwater Conditions

A surficial layer of topsoil, generally ranging in thickness from about 0.1 metres to 0.3 metres, was encountered in all of the boreholes and test pits. Topsoil on the subject site was generally determined to be underlain by deposits silty clay, sandy silt and glacial till. A detailed discussion on the subsurface conditions can be found in the aforementioned geotechnical report.

Measured groundwater levels in the well screens installed in boreholes 102, 105, and 106 ranged from 1.7 to 1.9 metres below ground surface on February 19, 2010. No groundwater inflow was observed in the test pits during the short period that they were left open following excavation.

The groundwater levels may be higher during wet periods of the year such as the early spring or following periods of precipitation.

2.3 Background Nitrate Concentration

Water samples were collected from the monitoring wells installed in boreholes 102 and 105 on June 3, 2010, and submitted to Exova Accutest for analysis of nitrates. The laboratory report of analysis are provided in Appendix B.

The results of the laboratory analysis indicate that the background nitrate concentration in the overburden soils in the vicinity of the proposed building were below the laboratory method of detection.

2.4 Nitrate Dilution Calculation

Calculations were carried out to assess the potential impact of septic effluent on the properties adjoining the proposed development using a nitrate dilution model. The Thornthwaite Water Balance method was used to estimate the net potential infiltration based on local climatic data available from Environment Canada for the Ottawa International Airport in Ottawa, Ontario.

The nitrate concentration at the site boundaries was calculated using the following information:

- A water surplus value of 312.4 millimetres was provided by Environment Canada obtained for the Ottawa International Airport in Ottawa, Ontario between 1983 to 2002 for soil with a water holding capacity of 280 millimetres (silty clay). A copy of the water surplus data is provided in Appendix C;
- A conservative infiltration factor of 0.45 was calculated using Table 2 of Section 4-62 of the MOE document titled "MOEE Hydrogeological Technical Requirements for Land Development Applications" dated April 1995.
    - A topography factor of 0.20 was used because the site has a gentle downward slope from the south to the north.
    - A soil factor of 0.15 based was chosen based on the existing overburden deposits (combinations of silty clay, sandy silt and glacial till).
    - A cover factor of 0.10 was chosen for this site since the subject site consists primarily of grassed landscaped areas.
- The area for potential infiltration was estimated to be approximately 44.9 hectares based on the total site area minus estimated hard surfaced parking areas, access roadways and roof tops (conservative estimate of 36,500 m^2 of hard surfaced areas).

Based on the above information, an expected volume of effluent of 6,000 litres per day for the proposed new building and an estimated 900 litres per day for the existing building on the subject site (total septic flow for the subject site of 6,900 litres per day) and an effluent nitrate concentration of 40 mg/L, the nitrate concentration at the site boundaries was calculated to be 1.53 mg/L (refer to the calculation in Appendix D). This is below the acceptable nitrate impact requirement of 2.5 mg/L established by the MOE for commercial sites. The value is considered to be conservative since some of the water runoff from hard surfaced areas (driveways, roofs, road, etc.) will be contained on the subject site and will infiltrate through native and imported soils.

3.0 GROUNDWATER SUPPLY INVESTIGATION

3.1 Field Procedures

A field investigation was carried out in accordance with the MOE August 1996 document "Procedure D-5-5, Technical Guideline for Private Wells: Water Supply Assessment" to determine the quantity and quality of groundwater available for domestic water supply.

One (1) new test well (Test Well TW1) was drilled by Capital Water Supply Ltd. of Stittsville, Ontario under Well Contractor License No. 1558 on February 18, 2010.

The approximate location of the test well is shown on the Test Well, Borehole and Test Pit Location Plan, Figure 2. An aerial photograph of the overall area of the subject site and area of proposed development are provided on the Site Plan, Figure 3. The MOE Water Well Record for the test wells is provided in Appendix E and the geographical reference for the test well is provided in the MOE Water Well Record.

3.1.1 Test Well Construction

Well grouting inspections were carried out by HCEL staff during the sealing of the well casing in the test well. The well casing for the test well was sealed into the bedrock by placing approximately 0.42 m^3 of cement and bentonite grout. HCEL staff was not present for the remainder of the drilling of the test well.

The construction details of the test well are summarized below:

Test Well	Depth to Bedrock (m BGS)	Depth of Casing (m BGS)	Total Well Depth (m BGS)
TW1	3.35	6.40	138.67

The well driller reported that some water was present in the test well but was insufficient to support pumping of the test well. The well driller brought a cable tool drill rig onsite to further develop the test well. The cable tool drill rig was successful in developing the test well such that sufficient quantity of water was obtained to carry out pumping of the test well.

3.1.2 Preliminary Water Sampling

A two (2) hour pump test was carried out by Capital Water Supply on February 19, 2010, for completion of the MOE Water Well Record. The well was pumped at a rate of 18.2 litres per minute for approximately two (2) hours. A preliminary water sample was collected from the test well following the two (2) hour pump test. The preliminary groundwater sample was collected and prepared/preserved in the field using established sampling protocols and submitted to Exova Accutest Laboratories (Exova) in Ottawa, Ontario for chemical, physical and bacteriological analyses as listed in the MOE guideline titled "Technical Guideline for Private Wells: Water Supply Assessment", dated August 1996. The laboratory reports of analysis for the preliminary water sampling are provided in Appendix F and summarized in Table 1 following the text of this report.

Additional pumping was conducted on the test well prior to re-sampling to confirm the exceedances noted in the preliminary water sample. The test well was pumped at a rate of approximately 22.5 litres per minute for approximately eight (8) hours on March 5, 2010. Following the eight (8) hours of additional pumping, a water sample was collected and submitted to Exova Accutest for analysis of parameters that were noted to be exceeded in the preliminary water sample. The laboratory reports of analysis for the supplementary sampling are provided in Appendix G.

Additional pumping of the test well was carried out over the period of March 16 to 18, 2010, in an effort to further develop the test well. Water samples were collected on March 16 and March 18 and submitted to Exova Accutest for analysis of fluoride. The laboratory reports of analysis for the supplementary sampling of fluoride are provided in Appendix G.

The results of the initial rounds of water sampling indicated that several health related, aesthetic and operational guideline parameters exceeded the limits provided in the Ontario Drinking Water Standards (ODWS). The exceedances of the preliminary water sample and subsequent retesting are summarized below:

Date	Parameter Exceeded	Concentration	ODWS Limit	Notes
Feb. 19, 2010	**Total Coliform**	<10 ct/100 mL	0 ct/100 mL	Exceedance due to elevated detection limit
	Escherichia Coli	<10 ct/100 mL	0 ct/100 mL	Exceedance due to elevated detection limit
	Colour	17 TCU	5 TCU	-
Feb. 19, 2010	**Fluoride**	3.17 mg/L	1.5 mg/L	-
	Hydrogen Sulphide	1	0.05 mg/L	Elevated Detection Limit
	Turbidity	>100 NTU	5 NTU	Elevated turbidity due to cable tool drill rig
	Sodium	125 mg/L	20 mg/L	Exceeds warning level for persons on sodium restricted diets only
	Iron	1.54 mg/L	0.3 mg/L	-
	Manganese	0.06 mg/L	0.05 mg/L	-
	Organic Nitrogen	0.18 mg/L	0.15 mg/L	-
Mar. 5, 2010	**Fluoride**	2.71 mg/L	1.5 mg/L	-
	Hydrogen Sulphide	3.80 mg/L	0.05 mg/L	-
	Turbidity	36.7 NTU	5 NTU	-
Mar. 16, 2010	**Fluoride**	2.94 mg/L	1.5 mg/L	-
Mar. 18, 2010	**Fluoride**	3.32 mg/L	1.5 mg/L	-

Notes: **Bold**: Health related parameter

3.1.3 Test Well Rehabilitation

Due to the observed concentrations of fluoride in the test well, rehabilitation options were investigated to improve the water quality of the well. The test well was hydro-fractured on April 30, 2010 by Outaouais Well Fracturing. The test well was hydro-fractured from a depth of approximately 6.4 metres below ground surface to a depth of 78.0 metres below ground surface.

An additional eight (8) hours of pumping was carried out on May 5, 2010, at a pumping rate of approximately 22.5 litres per minute. A water sample was collected from the test well following the eight (8) hours of pumping and submitted to Exova Accutest laboratory for analysis of fluoride. The laboratory report of analysis for the post hydro-fracturing water sample is provided in Appendix H.

The results of the May 5, 2010 water sample analysis indicated that the fluoride concentration in the test well was reduced by approximately 40 percent as a result of the hydro-fracturing activities. The fluoride concentrations in the test well samples collected prior to and after hydro-fracturing are summarized below:

Sample Date	Pre Hydro Fracturing Fluoride Concentration	Post Hydro Fracturing Fluoride Concentration
February 19, 2010	3.17 mg/L	-
March 5, 2010	2.71 mg/L	-
March 16, 2010	2.94 mg/L	-
March 18, 2010	3.32 mg/L	-
May 5, 2010	-	1.93 mg/L

Based on the Ministry of Environment document "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" dated June 2006, fluoride concentrations in the range of 1.5 to 2.4 mg/L should be addressed through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.

Once the concentration of fluoride in the test well following the hydro fracturing was reduced to a concentration within the range of 1.5 to 2.4 mg/L, a six (6) hour pump test was carried out on the test well to demonstrate that:

- fluoride concentrations in the test well will remain within the 1.5 to 2.4 mg/L range with continued well development;
- the quality of the water meets the Ministry of Environment Regulations, Standards, Guidelines and Objectives; and,
- the test well is capable of supplying a sufficient quantity of water for the intended future use.

3.1.4 Pumping Test

A pumping test for the onsite test well was conducted on May 18, 2010. A six (6) hour duration constant discharge rate pumping test was conducted on the test well at a flow rate of approximately 22.5 litres per minute. During the pumping test, water level measurements were taken at regular intervals using an electric water level tape and on a continuous basis using an electronic data logger. After the pump was shut off, water level data was collected until a minimum of 95 percent of the drawdown in water level had recovered in the test well. The water level measurements for the drawdown and recovery data for the pumping test are provided in Appendix I.

3.1.5 Water Sampling

Groundwater samples were collected from the test well after three hours of pumping and again in the last hour of the pump test to characterize groundwater quality. Total chlorine tests were performed to ensure that chlorine levels were at 0.0 mg/L prior to sampling for bacteriological testing. The temperature, conductivity, total dissolved solids, pH, turbidity and total chlorine levels of the groundwater were measured at periodic intervals during the pumping tests and are summarized in Table 2. The groundwater samples were collected and prepared/preserved in the field using established sampling protocols and submitted to Exova Accutest Laboratories (Exova) in Ottawa, Ontario for chemical, physical and bacteriological analyses as listed in the MOE guideline titled "Technical Guideline for Private Wells: Water Supply Assessment", dated August 1996. The results of the analyses are summarized in Table 3 and the laboratory reports of analysis are provided in Appendix J.

Corrective actions were undertaken to address microbiological exceedances detected in the test well in water samples collected during the six (6) hour pump test. Supplementary water sampling for microbiological analysis was carried out on June 9, 2010, following the corrective actions. The results of the supplementary microbiological water sampling are summarized in Table 3. The laboratory reports of analysis for the supplementary sampling are provided in Appendix K. Field measurements for chlorine and turbidity taken during additional pumping following the corrective actions are summarized in Table 4.

The local Medical Officer of Health was notified of the fluoride and sodium concentrations and the address of the property by facsimile on June 7, 2010. A response letter from the local

Medical Officer of Health, dated June 9, 2010 indicates that advisory information regarding fluoride and sodium concentrations in the water supply should be provided to users of the well water for consumption purposes. A copy of the facsimile sent to the local Medical Officer of Health and the response letter received are provided in Appendix L.

3.2 Water Quality

3.2.1 General

The results of the chemical, physical and bacteriological analyses on the water samples collected during the six (6) hour pump test are summarized in Table 3. All water quality results reported in the following sections are based on the water testing results after the hydro-fracturing of the well was completed. No water quality results prior to the hydro-fracturing are discussed in the following sections.

3.2.2 Health Related Parameters - Onsite Test Wells

Health related exceedances of the Ontario Drinking Water Standards (ODWS) were limited to microbiological parameters and fluoride. A summary of health related exceedances and subsequent re-sampling results are summarized below:

Sample Date	Parameter	Concentration	ODWS Maximum Acceptable Concentration
May 18, 2010	Total Coliform	6 ct/100 mL - 3 hour sample 6 ct/100 mL - 6 hour sample	0 ct/100 mL
	Fluoride	1.68 mg/L - 3 hour sample 2.12 mg/L - 6 hour sample	1.5/2.4 mg/L [1]
	Sodium	123 mg/L - 3 hour sample 177 mg/L - 6 hour sample	20/200 mg/L [2]
June 9, 2010	Total Coliform	0 ct/100 mL - Retest B3 0 ct/100 mL - Retest B4	0 ct/100 mL

Notes:
1. Naturally occurring fluoride concentrations in the range of 1.5 to 2.4 mg/L can be address through local boards of health.
2. Sodium concentration does not exceed aesthetic objective and exceeds warning level of 20 mg/L for persons on sodium restricted diets only.

As previously noted, the MOE Technical Support for ODWS document indicates that naturally occurring fluoride concentrations in the range of 1.5 to 2.4 mg/L can be addressed through local boards of health. When contacted, the local medical officer of health indicated that fluoride

concentrations in the test well were acceptable provided that advisory information is provided to users of the well water.

The following corrective actions were carried out to address the total coliform exceedance in the May 18, 2010 sample:

- The test well was chlorinated on June 4, 2010 by HCEL staff using approximately 8 litres of 6 % sodium hypochlorite solution (bleach);
- After approximately 87 hours of contact time, the test well was pumped at a flow rate of approximately 22.5 litres per minute for approximately sixteen (16) hours on June 8 and approximately eight (8) hours on June 9, 2010;
- On June 9, 2010, the total chlorine concentration was confirmed by HCEL staff to be non-detectable as indicated by four (4) consecutive total chlorine measurements taken approximately five (5) minutes apart using a HACH Total Chlorine test kit (model CN-66T),
- On June 9, 2010, the level of turbidity of the water from the test well was confirmed to be below 5.0 NTU in the field as indicated by four (4) consecutive turbidity measurements taken approximately five (5) minutes apart using a Hanna Instruments Portable Turbidity Meter (model HI 93703-11), and;
- Following confirmation of low levels of turbidity and the absence of total chlorine concentrations, two (2) water samples were collected on June 9, 2010 in laboratory supplied bottles by HCEL approximately five (5) minutes apart and submitted to Exova Laboratories for analysis of total coliform bacteria.

The results of the re-sampling for total coliform on June 9, 2010, of the test well indicated that total coliform bacteria concentrations had been reduced to 0 ct/100 mL in both of the re-test samples. Based on the absence of total coliform bacteria in the retest samples taken on June 9, 2010, no further corrective actions for the test well are required and it is considered that it has been satisfactorily demonstrated that the water quality available at the site is free from bacteriological exceedances of the ODWS.

3.2.3 Aesthetic Objectives and Operational Guidelines

Aesthetic and operational related exceedances of the Ontario Drinking Water Standards (ODWS) were limited to hydrogen sulphide, total dissolved solids, turbidity and hardness. A summary of aesthetic objective and operational guideline related exceedances for the onsite test well are summarized below:

Sample Date	Exceedance	Concentration of Exceedance	ODWS Criteria
May 18, 2010	Hydrogen Sulphide	0.17 mg/L - 3 hour sample 0.75 mg/L - 6 hour sample	0.05 mg/L
	Total Dissolved Solids	520 mg/L - 3 hour sample 683 mg/L - 6 hour sample	500 mg/L
	Turbidity	11.2 NTU - 3 hour sample 22.9 mg/L - 6 hour sample	5.0 NTU
	Hardness	128 mg/L as $CaCO_3$ - 3 hour sample 121 mg/L as $CaCO_3$ - 6 hour sample	100 mg/L as $CaCO_3$

Hydrogen Sulphide

The concentration of hydrogen sulphide in the test well exceeded the Ontario Drinking Water Standards (ODWS) aesthetic objective of 0.05 mg/L. The concentration of hydrogen sulphide in the test well ranged from 0.17 to 0.75 mg/L.

Elevated concentrations of hydrogen sulphide are typically characterized by an unpleasant odour (rotten egg smell) and, when in present in association with iron, can produce black stains on laundered items and black deposits on pipes and fixtures.

The Ministry of Environment document entitled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" indicates that low levels of hydrogen sulphide can be removed effectively from most well water by aeration. Hydrogen sulphide can also be effectively treated through the use of activated charcoal filters, chlorination, manganese greensand filters and other forms of oxidizing treatment. Based on the relatively low levels of hydrogen sulphide in the water samples collected during the pumping test, the water is considered to be reasonably treatable by aeration for the hydrogen sulphide exceedance.

Total Dissolved Solids

The level of Total Dissolved Solids (TDS) in the water sample from the test well exceeded the ODWS aesthetic objective of 500 milligrams per litre. As per Table 3 in the Appendix of the MOE Guideline D-5-5, rationale must be provided that corrosion, encrustation or taste problems will not occur when there are exceedances of the aesthetic objective for TDS.

To determine the potential for corrosion and/or encrustation of the groundwater, the Langelier Index (LI) and the Ryznar Stability Index (RSI) were calculated for the six (6) hour water sample obtained from test well on May 18, 2010. These values are based on the TDS, temperature, pH, alkalinity (as CaCO3), calcium (as CaCO3), chloride and sulphate levels observed in the sample. The six (6) hour laboratory results and the field temperature measured after six (6) hours of pumping of the test well were used for the purposes of the calculation.

The LI was calculated to be 0.55 and the RSI was calculated to be 7.2 for the test well. Information from the American Water Works Association indicates that the desired range of LI and RSI values to prevent corrosion and scaling is an LI greater than 0 and an RSI between 5.0 and 7.0. The results and our interpretations of the calculations are:

- The LI is in the desired range (slightly greater than zero (0)) and the water is considered to have a slight but tolerable scaling potential.
- The RSI is slightly outside the desired range of 5.0 to 7.0 and the water is considered to have a slight but tolerable corrosive potential.

Therefore, the degree of corrosion and scaling of plumbing should be acceptable. Additionally, based on our experience of carrying out resident interviews of homeowners with high TDS concentrations in their drinking water, we do not anticipate any discernable taste problems due to the TDS exceedance.

As per MOE Guideline D-5-5, we have shown that corrosion and encrustation are not expected to be of concern based on the LI and RSI calculations and we do not anticipate any discernable taste problems. Furthermore, a conventional water softener could be installed. The use of a conventional water softener will not reduce the total TDS, but will reduce the concentrations of calcium and magnesium, which are contributing factors to corrosion and encrustation.

Turbidity

The level of turbidity reported on the laboratory reports of analysis for the three (3) and six (6) hour water samples collected on May 18, 2010, ranged from 11.2 to 22.9 NTU and exceeded the ODWS aesthetic objective of 5.0 NTU. Additionally, field measurements of the turbidity during the pumping test ranged from 6.83 to 34.54 NTU.

Elevated levels of turbidity encountered in the test well are likely the result of the hydro-fracturing activities previously conducted on the test well (refer to section 3.1.3 of this report).

Additional pumping of the test well was carried out on June 8 and June 9, 2010, to address microbiological exceedances. Field turbidity measurements were taken on June 9, 2010, to confirm that turbidity levels reduced to levels below the ODWS aesthetic objective. Four (4) consecutive field turbidity measurements were taken approximately five (5) minutes apart. The results of the field turbidity testing are provided in Table 4.

As indicated in Table 4, the level of turbidity as measured in the field ranged from 1.95 to 2.76 NTU. Therefore, based on the field turbidity measurements made on June 9, 2010, the water from the test well currently meets the ODWS aesthetic objective for turbidity.

Hardness

The concentration of hardness in the water samples obtained from the test well ranged from 121 to 128 mg/L as CaCO3 and exceeded the operational guideline of 80 to 100 mg/L of CaCO3 as specified in the ODWS.

Water having a hardness level above 80 to 100 mg/L as CaCO3 is often softened for domestic use. The MOE Procedure D-5-5 document states that water having a hardness value more than 300 mg/L is considered "very hard". The Ontario Ministry of the Environment publication entitled "Ontario Drinking Water Objectives", states that waters with hardness in excess of 500 mg/L are considered to be unacceptable for most domestic purposes. Most water supply wells within rural eastern Ontario are equipped with water softeners.

The level of hardness in the test well is within the treatable limits provided in MOE Procedure D-5-5 document using conventional water softeners.

Water softening by conventional sodium ion exchange may introduce relatively high concentrations of sodium into the drinking water which may be of concern to persons on a sodium restricted diet. The use of potassium chloride in the water softener (which adds potassium to the water instead of sodium) could be considered as a means of keeping sodium concentrations in the water at background levels. Consideration could also be given to providing a bypass of the water softener for drinking water purposes.

3.3 Water Quantity

A pumping test was carried out on the onsite test well to determine the characteristics of the water supply aquifer. Water level measurements were taken using an electronic water level tape and an electronic data logger in the test well during the pumping and recovery portions of the pumping test. The drawdown and recovery data and graphs for the water levels in the test wells during pumping are provided in Appendix I. The drawdown data contained in Appendix I was measured with reference to the top of the well casings.

Please note that the discharge rate on the drawdown data and graph sheets for the pumping tests are listed as variable because the recovery period, where the discharge rate is zero, is included in the same data set as the drawdown data. However, the actual discharge rate during the pumping of the test wells was at a constant rate.

The specific details of the pumping tests carried out on the test well are summarized below. All depths provided are in metres below ground surface (m BGS):

Parameter	Test Well
Pumping Duration (minutes)	381
Flow Rate (L/min)	22.8
Static Water Level (m BGS)	8.26
Well Depth (m BGS)	138.67
Available Drawdown (m)	130.09
Water Level at End of Pumping (m BGS)	28.64
Observed Drawdown at End of Pumping (m)	20.38
Drawdown Utilized (%)	15.7
Specific Capacity (m^3/day•m)	1.6

As per MOE Procedure D-5-5, the test well was pumped at a flow rate greater than 13.7 litres per minute over a minimum of 6 hours. The maximum drawdown observed was 20.38 metres which is equivalent to approximately 15.7 percent of the available drawdown in the test well.

Based on these results, the onsite test well is capable of supplying water at a rate greater than 22.8 litres per minute for a period greater than six (6) hours. This is considered more than sufficient for proposed development use.

Based on the results of the drawdown and recovery data for the pumping test on the test well, the transmissivity was determined based on Theis analyses using Aquifer Test Pro 4.2.1.0, a commercially available software program from Waterloo Hydrogeologic Inc. The results of the Aquifer Test Pro 4.2.1.0 analysis are provided in Appendix M. The results of the analysis are summarized below:

Data Source	Transmissivity (m^2/day)
Test Well	1.3
Typical Aquifer Parameters	15.7

The typical aquifer parameters transmissivity value was calculated as the arithmetic mean from the average transmissivity values for the Nepean-March-Oxford Hydrogeologic Unit, Rockcliffe Hydrogeologic Unit and Ottawa Group Hydrogeologic Unit provided in the MOE document entitled "The Hydrogeology of Southern Ontario, Second Edition" and dated April 2003.

The results of the Theis analysis indicate that the calculated transmissivity of the water supply aquifer available at the subject site is less than the typical aquifer transmissivity for local aquifers in the Ottawa area. Although the calculated transmissivity is less than typical transmissivity, there is sufficient water available at the site. This conclusion is based on:

- the flow rate during the pumping tests (22.8 litres per minute);
- the duration of the pumping tests (greater than 6 hours);
- the drawdown observed in the water wells (maximum of 15.7 percent drawdown after 6 hours of pumping), and;
- the water level in the well recovered by 95 percent of the drawdown approximately 130 minutes after the pump was shut off.

3.4 Ontario Ministry of Environment Water Well Records

The MOE Water Well Records for a 1.5 kilometre radius surrounding the subject site were obtained to determine the characteristics of existing private wells in the vicinity of the subject site. A total of one hundred and twenty two (122) well records were obtained and these records are provided in Appendix N. One hundred and five (105) of the well records were for drilled wells completed in the bedrock, twelve (12) of the well records were for wells completed in the overburden and five (5) of the well records were for unknown well types.

The well characteristics for the water well records are summarized below:

Parameter	Minimum	Maximum
Depth Water Found (m)	7.6	147.8
Pumping Rate (litres per minute)	4.5	682
Total Well Depth (m)	3.7	154.2

The depth to water found, pumping rate and total well depth of the onsite test well are within the ranges of depth to water found, pumping rate and total well depth for private wells in the vicinity of the subject site.

4.0 CONCLUSIONS

The subject site is considered suitable for development based on the results of the hydrogeological assessment. The quality and quantity of groundwater is sufficient to service proposed development.

Following hydro-fracturing and chlorination of the test well, water quality at the site is suitable for the intended use since:

- Education and notification measures can be put in place to address fluoride concentrations that range between 1.5 and 2.4 mg/l.

- Notification can be provided to indicate sodium concentrations exceeding the ODWS warning level of 20mg/l.

- A combination of reasonably available treatment measures (as indicated by MOE Procedure D-5-5 document), including aeration and conventional water softeners can be utilized to address hydrogen sulphide, total dissolved solids and hardness.

- The local medical officer of health has been notified of the sodium and fluoride concentrations found in the test well and concurred that education and notification to the users of the well for consumption purposes is an acceptable approach.

- The pump test indicated that the onsite test well is capable of sustaining short term yields greater than 22.8 litres per minute for a minimum period of six (6) hours. The maximum observed drawdown during the pumping test was approximately 15.7 percent of the available drawdown in the test well. The quantity of water pumped during the six (6) hour pumping test is greater than the calculated daily design flow for the proposed septic system to service the development. Therefore, the quantity of water available from the test well is sufficient to service the proposed development.

- The results of the nitrate dilution calculation indicate that the expected nitrate concentration at the boundaries of the subject site is expected to be approximately 1.5 mg/L, which is below the allowable nitrate concentration at the site boundaries. Therefore, no significant impacts from onsite disposal of septic effluent are anticipated on the water supply aquifer due to the proposed development.

6.0 LIMITATIONS OF REPORT

This report was prepared for Novatech Engineering Consultants (Novatech) and Pinecrest Remembrance Services Ltd. (Pinecrest) and is intended for the exclusive use of Novatech and Pinecrest. This report may not be relied upon by any other person or entity without the express written consent of HCEL, Novatech and Pinecrest. Nothing in this report is intended to provide a legal opinion.

The investigation undertaken by HCEL with respect to this report and any conclusions or recommendations made in this report reflect the best judgments of HCEL based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared. This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, subsurface investigations at discrete locations and depths and laboratory analyses of specific chemical parameters and material during a specific time interval, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, portions of the site that were unavailable for direct investigation, subsurface locations on the site that were not investigated directly, or chemical parameters, materials or analysis which were not addressed.

Should new information become available during future work, including excavations, borings or other studies, HCEL should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

We trust that this report is sufficient for your requirements. If you have any questions concerning this information or if we can be of further assistance to you on this project, please call.

Yours truly,

HOULE CHEVRIER ENGINEERING LTD.

James McEwen, B.Sc., B.Eng.
Hydrogeologist

Mike Grinnell, P.Eng.
Senior Environmental Engineer

Andrew Chevrier, M.Eng., P.Eng.
Principal

LICENSED PROFESSIONAL ENGINEER
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7974504
PROVINCE OF ONTARIO

7.0 REFERENCES

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TABLES

July 2010

Our Ref: 10-025-2

Table 1 - Summary of Preliminary Water Test Results

PARAMETER	UNITS	19-Feb-10	26-Feb-10	26-Feb-10	5-Mar-10	ONTARIO DRINKING WATER STANDARD	TYPE OF STANDARD
Total Coliforms	ct/100mL	**<10**	0	0	0	0	MAC[1]
Escherichia Coli	ct/100mL	**<10**	-	-	0	0	MAC
Heterotrophic Plate Count	ct/1mL	65	-	-	9	-	-
Faecal Coliforms	ct/100mL	<10	-	-	0	-	-
Faecal Streptococcus	ct/100mL	<10	-	-	1	-	-
Alkalinity as CaCO3	mg/L	269	-	-	-	30-500	OG[2]
Chloride	mg/L	56	-	-	-	250	AO[3]
Colour	TCU	**17**	-	-	<2	5	AO
Conductivity	µS/cm	747	-	-	-	-	-
Dissolved Organic Carbon	mg/L	1.4	-	-	-	5.0	AO
Fluoride	mg/L	**3.17**	-	-	**2.71**	1.5	MAC
Hydrogen Sulphide	mg/L	**1**	-	-	**3.80**	0.05	AO
N-NH3 (Ammonia)	mg/L	0.19	-	-	-	-	-
N-NO2 (Nitrite)	mg/L	<0.10	-	-	-	0.1[4]	MAC
N-NO3 (Nitrate)	mg/L	<0.10	-	-	-	10[4]	MAC
pH		8.39	-	-	-	6.5-8.5	OG
Phenols	mg/L	0.005	-	-	-	-	-
Sulphate	mg/L	27	-	-	-	500	AO
Tannin & Lignin	mg/L	1.0	-	-	-	-	-
TDS (COND - CALC)	mg/L	486	-	-	-	500	AO
Total Kjeldahl Nitrogen	mg/L	0.37	-	-	-	-	-
Turbidity	NTU	**>100**	-	-	**36.7**	5	AO
Hardness as CaCO3	mg/L	80	-	-	-	80-100	OG
Ion Balance		0.93	-	-	-	-	-
Calcium	mg/L	17	-	-	-	-	-
Magnesium	mg/L	9	-	-	-	-	-
Potassium	mg/L	4	-	-	-	-	-
Sodium	mg/L	**125**	-	-	-	200[5]	AO
Iron	mg/L	**1.54**	-	-	<0.03	0.3	AO
Manganese	mg/L	**0.06**	-	-	<0.01	0.05	AO
Organic Nitrogen[6]	mg/L	**0.18**	-	-	-	0.15	OG

NOTES:

1. MAC = Maximum Acceptable Concentration
2. OG = Operational Guideline
3. AO = Aesthetic Objective
4. The total of Nitrate and Nitrite should not exceed 10 mg/litre
5. The aesthetic objective for sodium is 200 mg/litre. The local medical officer of health should be notified when the sodium concentration exceeds 20 mg/litre for persons on sodium restricted diets.
6. Organic Nitrogen = Total Kjeldahl Nitrogen - N-NH3 and should not exceed 0.15 mg/litre.
7. '-' signifies no value provided in the ODWS guideline.

Table 1 (Continued) - Summary of Preliminary Water Test Results

PARAMETER	UNITS	16-Mar-10	18-Mar-10	ONTARIO DRINKING WATER STANDARD	TYPE OF STANDARD
Total Coliforms	ct/100mL	-	-	0	MAC[1]
Escherichia Coli	ct/100mL	-	-	0	MAC
Heterotrophic Plate Count	ct/1mL	-	-	-	-
Faecal Coliforms	ct/100mL	-	-	-	-
Faecal Streptococcus	ct/100mL	-	-	-	-
Alkalinity as CaCO3	mg/L	-	-	30-500	OG[2]
Chloride	mg/L	-	-	250	AO[3]
Colour	TCU	-	-	5	AO
Conductivity	µS/cm	-	-	-	-
Dissolved Organic Carbon	mg/L	-	-	5.0	AO
Fluoride	mg/L	2.94	3.32	1.5	MAC
Hydrogen Sulphide	mg/L	-	-	0.05	AO
N-NH3 (Ammonia)	mg/L	-	-	-	-
N-NO2 (Nitrite)	mg/L	-	-	0.1[4]	MAC
N-NO3 (Nitrate)	mg/L	-	-	10[4]	MAC
pH		-	-	6.5-8.5	OG
Phenols	mg/L	-	-	-	-
Sulphate	mg/L	-	-	500	AO
Tannin & Lignin	mg/L	-	-	-	-
TDS (COND - CALC)	mg/L	-	-	500	AO
Total Kjeldahl Nitrogen	mg/L	-	-	-	-
Turbidity	NTU	-	-	5	AO
Hardness as CaCO3	mg/L	-	-	80-100	OG
Ion Balance		-	-	-	-
Calcium	mg/L	-	-	-	-
Magnesium	mg/L	-	-	-	-
Potassium	mg/L	-	-	-	-
Sodium	mg/L	-	-	200[5]	AO
Iron	mg/L	-	-	0.3	AO
Manganese	mg/L	-	-	0.05	AO
Organic Nitrogen(1)	mg/L	-	-	0.15	OG

NOTES:

1. MAC = Maximum Acceptable Concentration
2. OG = Operational Guideline
3. AO = Aesthetic Objective
4. The total of Nitrate and Nitrite should not exceed 10 mg/litre
5. The aesthetic objective for sodium is 200 mg/litre. The local medical officer of health should be notified when the sodium concentration exceeds 20 mg/litre for persons on sodium restricted diets.
6. Organic Nitrogen = Total Kjeldahl Nitrogen - N-NH3 and should not exceed 0.15 mg/litre.
7. '-' signifies no value provided in the ODWS guideline.

Table 2 - Summary of Field Parameter Measurements - Six Hour Pump Test

Date	Time Since Start of Pumping (hrs:min)	Temperature (°C)	Conductivity (µS/cm)	Total Dissolved Solids (ppm)	pH	Turbidity (NTU)	Total Chlorine (mg/L)
18-May-10	1:00	11.4	805	402	6.88	34.54	0.0
	2:00	11.8	770	385	7.10	20.67	0.0
	3:00	11.8	793	390	7.28	13.79	0.0
	4:00	12.7	898	450	7.25	10.22	0.0
	0:00	12.4	995	495	7.29	7.49	0.0
	6:00	12.5	1090	538	7.29	6.83	0.0

Table 3 - Summary of Water Test Results - Six Hour Pump Test

PARAMETER	UNITS	18-May-10 3 Hour Sample	18-May-10 6 Hour Sample	6/9/2010 Retest B3	6/9/2010 Retest B4	ONTARIO DRINKING WATER STANDARD	TYPE OF STANDARD
Total Coliforms	ct/100mL	**6**	**6**	0	0	0	MAC[1]
Escherichia Coli	ct/100mL	0	0	-	-	0	MAC
Heterotrophic Plate Count	ct/1mL	24	1	-	-	-	-
Faecal Coliforms	ct/100mL	0	0	-	-	-	-
Faecal Streptococcus	ct/100mL	-	0	-	-	-	-
Alkalinity as CaCO3	mg/L	237	238	-	-	30-500	OG[2]
Chloride	mg/L	82	130	-	-	250	AO[3]
Colour	TCU	<2	<2	-	-	5	AO
Conductivity	µS/cm	800	1050	-	-	-	-
Dissolved Organic Carbon	mg/L	1.7	1.3	-	-	5.0	AO
Fluoride	mg/L	**1.68**	**2.12**	-	-	1.5	MAC
Hydrogen Sulphide	mg/L	**0.17**	**0.75**	-	-	0.05	AO
N-NH3 (Ammonia)	mg/L	0.26	0.32	-	-	-	-
N-NO2 (Nitrite)	mg/L	<0.10	<0.10	-	-	0.1[4]	MAC
N-NO3 (Nitrate)	mg/L	<0.10	<0.10	-	-	10[4]	MAC
pH		8.22	8.29	-	-	6.5-8.5	OG
Phenols	mg/L	0.002	0.005	-	-	-	-
Sulphate	mg/L	45	76	-	-	500	AO
Tannin & Lignin	mg/L	0.1	0.4	-	-	-	-
TDS (COND - CALC)	mg/L	**520**	**683**	-	-	500	AO
Total Kjeldahl Nitrogen	mg/L	0.25	0.38	-	-	-	-
Turbidity	NTU	**11.2**	**22.9**	-	-	5	AO
Hardness as CaCO3	mg/L	**128**	**121**	-	-	80-100	OG
Ion Balance		1.00	1.01	-	-	-	-
Calcium	mg/L	30	27	-	-	-	-
Magnesium	mg/L	13	13	-	-	-	-
Potassium	mg/L	5	5	-	-	-	-
Sodium	mg/L	**123**	**177**	-	-	200[5]	AO
Iron	mg/L	0.16	0.08	-	-	0.3	AO
Manganese	mg/L	<0.01	<0.01	-	-	0.05	AO
Organic Nitrogen[6]	mg/L	0.00	0.06	-	-	0.15	OG

NOTES:

1. MAC = Maximum Acceptable Concentration
2. OG = Operational Guideline
3. AO = Aesthetic Objective
4. The total of Nitrate and Nitrite should not exceed 10 mg/litre
5. The aesthetic objective for sodium is 200 mg/litre. The local medical officer of health should be notified when the sodium concentration exceeds 20 mg/litre for persons on sodium restricted diets.
6. Organic Nitrogen = Total Kjeldahl Nitrogen - N-NH3 and should not exceed 0.15 mg/litre.
7. '-' signifies no value provided in the ODWS guideline.

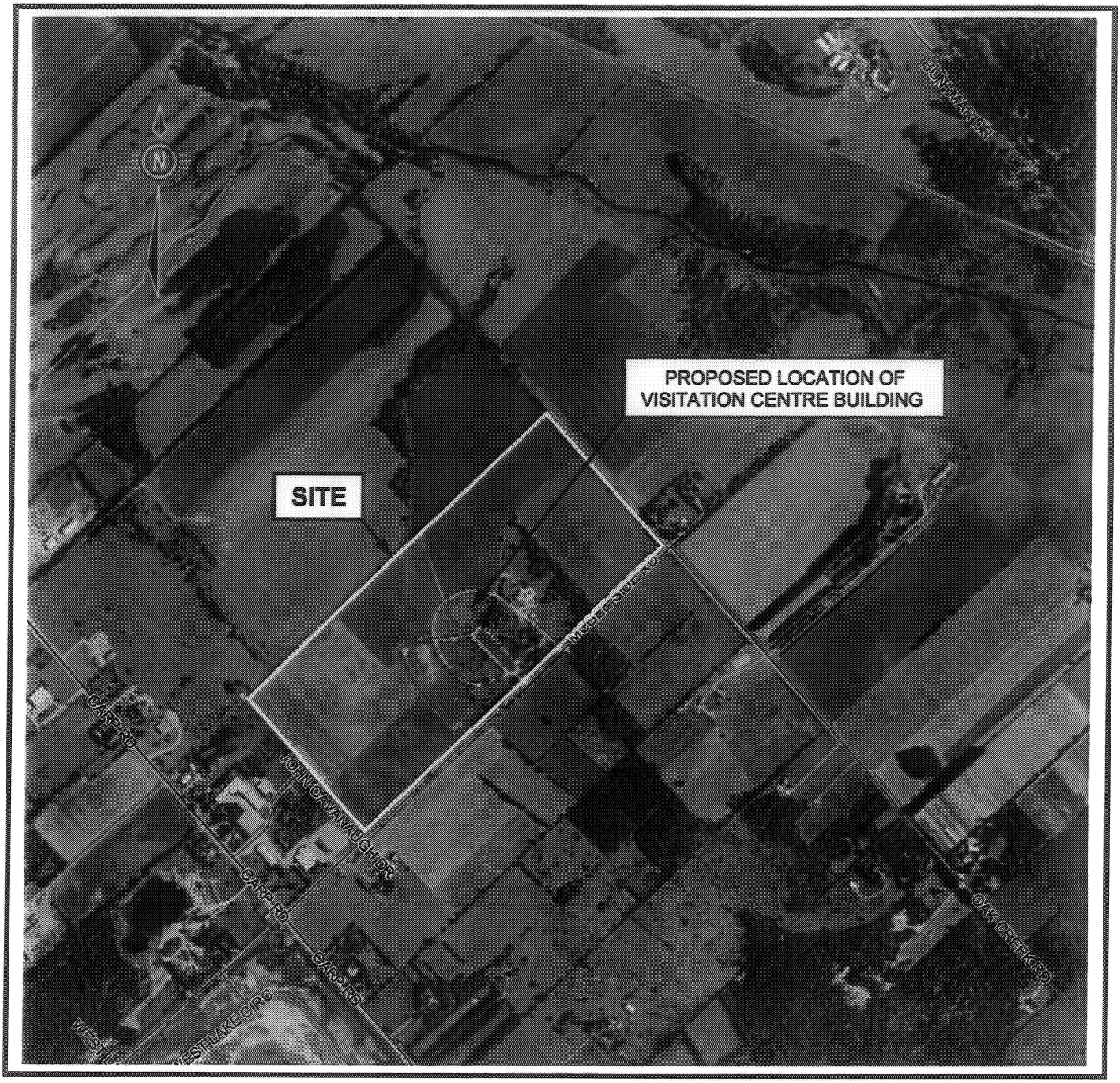
Table 4 - Summary of Field Parameter Measurements - Supplemental Sampling

Date	Approximate Time Since Start of Additional Pumping (hrs:min)	Turbidity (NTU)	Total Chlorine (mg/L)	Notes
9-Jun-10	24:00	2.00	0.0	-
	24:07	2.76	0.0	-
	24:16	2.19	0.0	Collected Supplemental Sample TW1 - B3
	24:22	1.95	0.0	Collected Supplemental Sample TW1 - B4

FIGURES

SITE LOCATION MAP

FIGURE 1

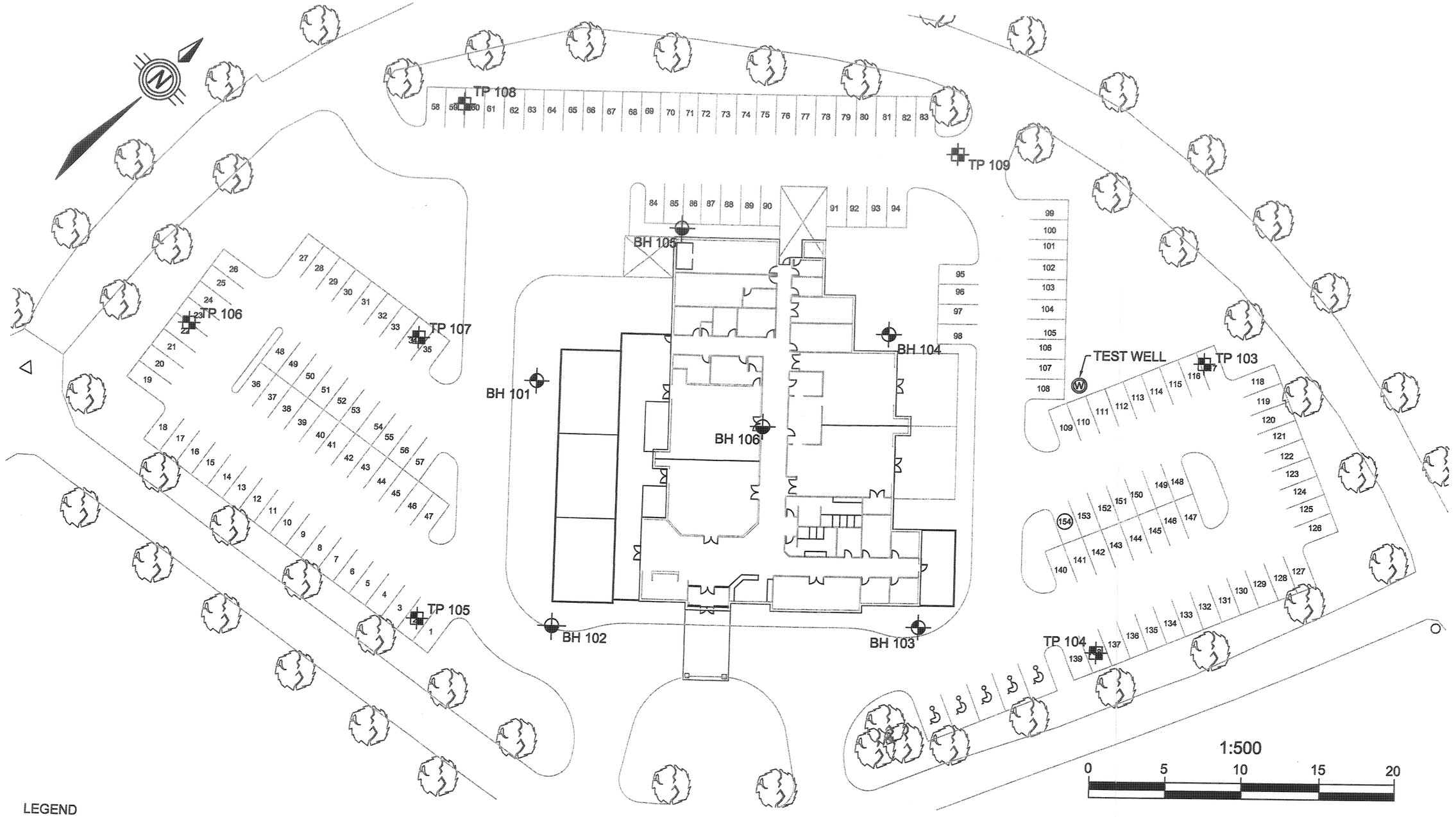


N.T.S

Houle Chevrier Engineering

Date: July 2010

Project: 10-025



LEGEND

TP #	APPROXIMATE TEST PIT LOCATION IN PLAN
BH #	APPROXIMATE BOREHOLE LOCATION IN PLAN
BH #	BOREHOLE WITH MONITORING WELL INSTALLATION
(W)	TEST WELL LOCATION IN PLAN

REFERENCE: PLAN PREPARED USING SITE PLAN PROVIDED BY NOVATECH ENGINEERING CONSULTANTS LTD.

Client: PINECREST REMEMBRANCE SERVICES LTD.		Location: HIGHLAND PARK CEMETERY 2037 McGEE SIDE ROAD OTTAWA, ON	Revision: 1
Drawn by: D.J.R	Approved by: S.M.G.	Project No.: 10-025-2	Scale: 1:500
Houle Chevrier Engineering		Title: TEST WELL, BOREHOLE AND TEST PIT LOCATION PLAN	
		Date: July 2010	FIGURE 2

REFERENCE: PLAN PREPARED USING OTTAWA E-MAPS.

Client: PINECREST REMEMBRANCE SERVICES LTD.		Location: HIGHLAND PARK CEMETARY 2037 McGEE SIDE ROAD OTTAWA, ON	Revision: 0
Drawn by: D.J.R	Approved by: S.M.G.	Project No.: 10-025-2	Scale: 1:1000
Houle Chevrier Engineering		Title: SITE PLAN	
		Date: July 2010	FIGURE 3

APPENDIX A

APPENDIX A

URBAN GEOLOGY OF THE NATIONAL CAPITAL REGION

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APPENDIX B

APPENDIX B

NITRATE CONCENTRATIONS
EXOVA ACCUTEST REPORT OF ANALYSIS

REPORT OF ANALYSIS

Client: **Houle Chevrier Engineering**
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: **Mr. James McEwen**

Report Number: 1012419
Date: 2010-06-07
Date Submitted: 2010-06-03

Project: 10-025-2

Chain of Custody Number: **122500**

P.O. Number:
Matrix: Water

			LAB ID:	802538	802539				GUIDELINE		
			Sample Date:	2010-06-03	2010-06-03				ODWSOG		
			Sample ID:	BH102	BH105						
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
N-NO3 (Nitrate)	mg/L	0.1		<0.10	<0.10				MAC	10.0	mg/L

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Ewan McRobbie
Inorganic Lab Supervisor

APPENDIX C

APPENDIX C

OTTAWA INTERNATIONAL AIRPORT WATER SURPLUS DATA
ENVIRONMENT CANADA

Environment Canada
Water Surplus Data
(1983-2002)

Soil Type: Silty Clay

Water Holding Capacity: 280 millimetres

Year	Surplus (mm)
1983	337.1
1984	386.7
1985	258.8
1986	460.4
1987	240.6
1988	287.3
1989	203.9
1990	353.9
1991	335.8
1992	308.7
1993	467.7
1994	335.6
1995	298.6
1996	374.3
1997	341.4
1998	223.8
1999	150.9
2000	329.3
2001	215.5
2002	338.6
Avg. Surplus (mm) (1983-2003)	312.4

APPENDIX D

APPENDIX D

NITRATE DILUTION CALCULATION

APPENDIX D

NITRATE DILUTION CALCULATION

Average Water Surplus for 1983-2002
(Ottawa International Airport) = 312.4 millimetres

Potential Area for Infiltration = Site Area - Hard Surface Areas

= 485,619 m^2 - 36,500 m^2 (Estimated Hard Surface Areas)
= 449,119 m^2

Volume of Available Annual Infiltration

= 449,119 m^2 x 0.3124 m (NPI) x 0.45 (infiltration factor) = 63,137 m^3

Annual expected volume of effluent based on 6,900 litres of effluent per day

$$= 1 \times 6{,}900 \text{ litres/day} \times \frac{1}{1000 \text{ litres/m}^3} \times 365 \text{ days/year} = 2{,}518.5 \text{ m}^3$$

Concentration of Nitrate at Site Boundaries

$$= \frac{2{,}518.5 \text{ m}^3 \times 40 \text{ mg/litre}}{63{,}137 \text{ m}^3 + 2{,}518.5 \text{ m}^3} = 1.53 \text{ mg/litre}$$

APPENDIX E

APPENDIX E

ONSITE TEST WELL WATER WELL RECORD

Ontario — Ministry of the Environment

Measurements recorded in: ☒ Metric ☐ Imperial

Well Tag No. (Place Sticker and/or Print Below): A082875

A 082875

Well Record

ion 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Houle Chevrier Engineering Ltd.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
180 Wescar Lane	Carp	Ontario	K0A 1L0	613 836 1422

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Highland Park Cemetary	West Carleton-Huntley	11	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	1 8	432281	5019092		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Clay	Boulders		0	3.35
Gray	Limestone	Dark Layers	Medium	3.35	136.54
Gray	Limestone	Dark Layers	Medium	136.54	138.67

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
6.40	0	Grouted Cement & Bentonite	.42m^3

Method of Construction

☐ Cable Tool ☐ Diamond ☐ Rotary (Conventional) ☐ Jetting ☒ Rotary (Reverse) Air ☐ Driving ☐ Boring ☐ Digging ☒ Air percussion ☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used ☒ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	6.40

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 91.43

Pumping rate (l/min / GPM): 18.20

Duration of pumping: 2 hrs + ____ min

Final water level end of pumping (m/ft): 27.84

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 60.95

Recommended pump rate (l/min / GPM): 18.20

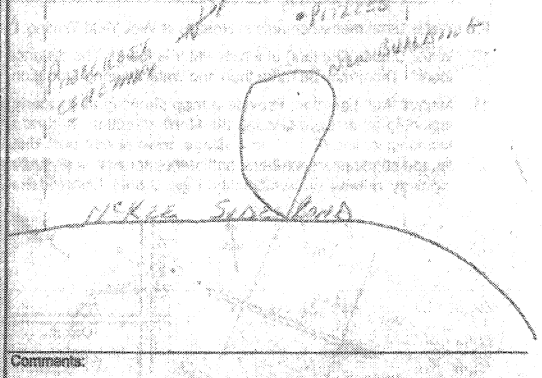
Well production (l/min / GPM):

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	8.46		
1	8.58	1	27.35
2	9.27	2	26.58
3		3	25.68
4	10.87	4	24.89
5	11.57	5	24.26
10	14.69	10	20.10
15	16.89	15	18.12
20	18.82	20	15.77
25	20.35	25	14.46
30	22.15	30	
40	24.13	40	11.04
50	25.10	50	10.43
60	26.10	60	10.86

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	Hole Diameter Depth (m/ft) From	To	Diameter (cm/in)
		0	6.40	15.86
		6.40	136.54	15.23
		136.54	138.67	14.28

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1 5 1 5 8

Business Address (Street Number/Name)	Municipality
Box 400	Smiths Ville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A5	office capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 836 1766	Millery, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0 0 9 7		2010 09 20

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
☒ Yes ☐ No	2010 09 29	Audit No. Z101792
	Date Work Completed: 2010 03 18	

0506E (12/2007) — Well Owner's Copy

APPENDIX F

APPENDIX F

PRELIMINARY WATER TEST RESULTS
EXOVA ACCUTEST REPORTS OF ANALYSES

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1003373
Date: 2010-02-22
Date Submitted: 2010-02-19

Project: 10-025

Chain of Custody Number: 105725

P.O. Number:
Matrix: Water

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:					ODWSOG		
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Total Coliforms	CFU/100mL		<10					MAC	0	CFU/100mL
Escherichia Coli	CFU/100mL		<10					MAC	0	CFU/100mL
Heterotrophic Plate Count	CFU/1mL		65							
Faecal Coliforms	CFU/100mL		<10							
Faecal Streptococcus	CFU/100mL		<10							

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Dragana Dzeletovic
Microbiology Analyst

REPORT OF ANALYSIS

exova Accutest

Client: **Houle Chevrier Engineering**
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: **Mr. James McEwen**

Report Number: 1003389
Date: 2010-03-01
Date Submitted: 2010-02-19

Project: 10-025

Chain of Custody Number: **105725**

P.O. Number:
Matrix: Water

	LAB ID:	777948					GUIDELINE		
	Sample Date:	2010-02-19							
	Sample ID:	TW1 SA1					ODWSOG		
PARAMETER	UNITS	MRL					TYPE	LIMIT	UNITS
Alkalinity as CaCO3	mg/L	5	269						
Chloride	mg/L	1	56				OG	500	mg/L
Colour	TCU	2	17				AO	250	mg/L
Conductivity	uS/cm	5	747				AO	5	TCU
Dissolved Organic Carbon	mg/L	0.5	1.4						
Fluoride	mg/L	0.1	3.17				AO	5	mg/L
Hydrogen Sulphide	mg/L	1	1				MAC	1.5	mg/L
N-NH3 (Ammonia)	mg/L	0.02	0.19				AO	0.05	mg/L
N-NO2 (Nitrite)	mg/L	0.1	<0.10						
N-NO3 (Nitrate)	mg/L	0.1	<0.10				MAC	1.0	mg/L
pH			8.39				MAC	10.0	mg/L
Phenols	mg/L	0.001	0.005					6.5-8.5	
Sulphate	mg/L	1	27						
Tannin & Lignin	mg/L	0.5	1.0				AO	500	mg/L
Total Dissolved Solids (COND - CALC)	mg/L	5	486						
Total Kjeldahl Nitrogen	mg/L	0.1	0.37				AO	500	mg/L
Turbidity	NTU	0.1	>100						
Hardness as CaCO3	mg/L	1	80				MAC	1.0	NTU
Ion Balance		0.01	0.93				OG	100	mg/L
Calcium	mg/L	1	17						
Magnesium	mg/L	1	9						
Potassium	mg/L	1	4						
Sodium	mg/L	2	125						
Iron	mg/L	0.03	1.54				AO	200	mg/L
Manganese	mg/L	0.01	0.06				AO	0.3	mg/L
							AO	0.05	mg/L

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:
777948: Sediment was not included in Metals analysis. H2S MRL elevated due to sample turbidity. Tannin/Lignin MRL elevated due to sample turbidity.

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

APPENDIX G

APPENDIX G

PRE-HYDRO FRACTURING SUPPLEMENTAL WATER SAMPLING

EXOVA ACCUTEST REPORTS OF ANALYSIS

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1004426
Date: 2010-03-08
Date Submitted: 2010-03-05

Project: 10-025

Chain of Custody Number: 109910

P.O. Number:
Matrix: Water

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:					ODWSOG		
PARAMETER	UNITS	MRL						TYPE	LIMIT	UNITS
Total Coliforms	CFU/100mL		0					MAC	0	CFU/100mL
Escherichia Coli	CFU/100mL		0					MAC	0	CFU/100mL
Heterotrophic Plate Count	CFU/100mL		9							
Faecal Coliforms	CFU/100mL		0							
Faecal Streptococcus	CFU/100mL		1							

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL: _____
Dragana Dzeletovic
Microbiology Analyst

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1004438
Date: 2010-03-08
Date Submitted: 2010-03-05
Project: 10-025
P.O. Number:
Matrix: Water

Chain of Custody Number: 109910

								GUIDELINE		
			LAB ID:	780994						
			Sample Date:	2010-03-05						
			Sample ID:	TW1				ODWSOG		
PARAMETER	UNITS	MRL						TYPE	LIMIT	UNITS
Colour	TCU	2	<2					AO	5	TCU
Fluoride	mg/L	0.1	2.71					MAC	1.5	mg/L
Hydrogen Sulphide	mg/L	0.01	3.80					AO	0.05	mg/L
Turbidity	NTU	0.1	36.7					MAC	1.0	NTU
Iron	mg/L	0.03	<0.03					AO	0.3	mg/L
Manganese	mg/L	0.01	<0.01					AO	0.05	mg/L

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1005237
Date: 2010-03-17
Date Submitted: 2010-03-16

Project: 10-025

P.O. Number:
Matrix: Water

Chain of Custody Number: 107162

								GUIDELINE		
LAB ID:			783200					ODWSOG		
Sample Date:			2010-03-16							
Sample ID:			TW1-SA3							
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Fluoride	mg/L	0.1	2.94					MAC	1.5	mg/L

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1005393
Date: 2010-03-19
Date Submitted: 2010-03-18

Project: 10-025

Chain of Custody Number: 109912

P.O. Number:
Matrix: Water

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:					ODWSOG		
PARAMETER	UNITS	MRL						TYPE	LIMIT	UNITS
Fluoride	mg/L	0.1	3.32					MAC	1.5	mg/L

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

APPENDIX H

APPENDIX H

POST-HYDRO FRACTURING WATER TEST RESULTS

EXOVA ACCUTEST REPORT OF ANALYSIS

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1009701
Date: 2010-05-06
Date Submitted: 2010-05-05

Project: 10-029

Chain of Custody Number: 120925

P.O. Number:
Matrix: Water

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:							
PARAMETER	UNITS	MRL						TYPE	LIMIT	UNITS
Fluoride	mg/L	0.1	1.93							

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

APPENDIX I

APPENDIX I

WATER LEVEL DRAWDOWN AND RECOVERY DATA

Houle Chevrier Engineering

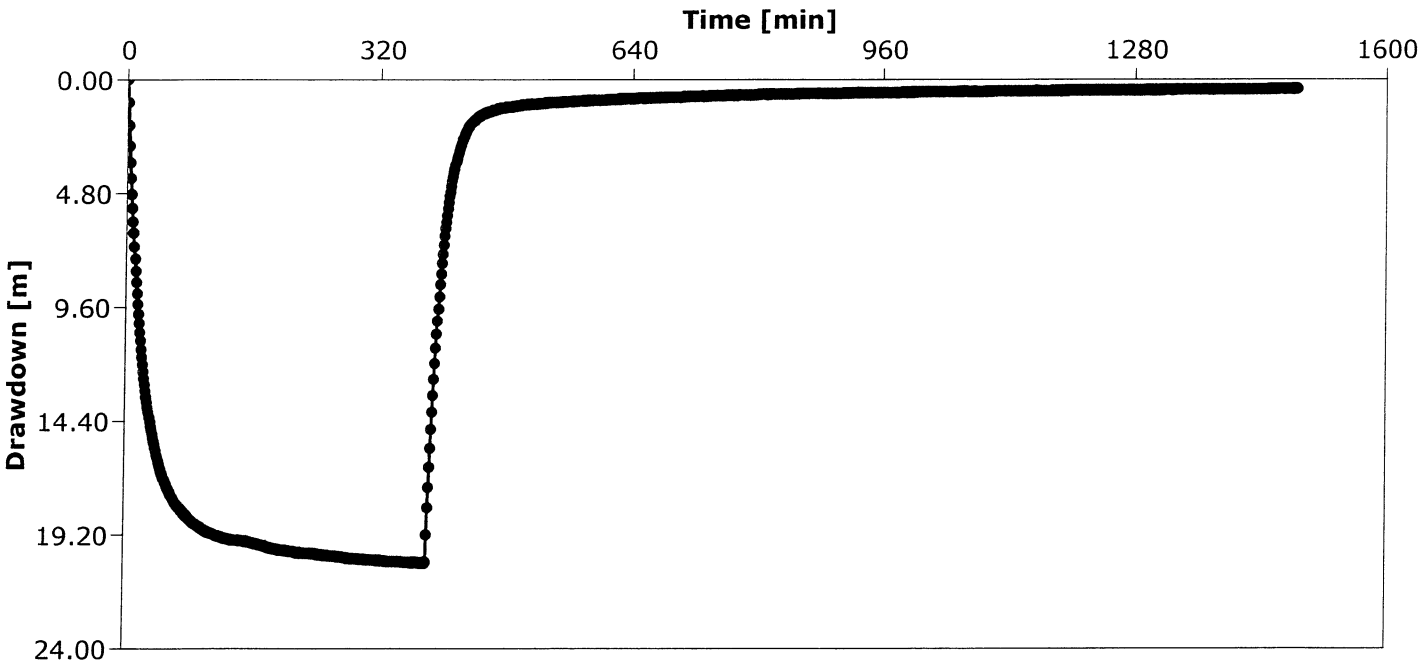
Pumping Test Analysis Report

Project: Highland Park Hydrogeological Assessment

Number: 10-025-2

Client: Pinecrest Remembrance Services Ltd.

Location: 2037 McGee Side Road, Ottawa, Ontario	Pumping Test: Pumping Test 1	Pumping Well: TW1
Test Conducted by:		Test Date: 5/27/2010
Analysis Performed by: JM	Drawdown vs. Time	Analysis Date: 5/27/2010
Aquifer Thickness:	Discharge: variable, average rate 0.0043434 [m³/min]	



Houle Chevrier Engineering

Pumping Test - Water Level Data

Project: Highland Park Hydrogeological Assessment

Number: 10-025-2

Client: Pinecrest Remembrance Services Ltd.

Location: 2037 McGee Side Road, Ottawa, Ontario	Pumping Test: Pumping Test 1	Pumping Well: TW1
Test Conducted by:	Test Date: 5/27/2010	Discharge: variable, average rate 0.0043434 [m³/min]
Observation Well: TW1a	Static Water Level [m]: 8.58	Radial Distance to PW [m]: 0.15

	Time [min]	Water Level [m]	Drawdown [m]
1	0	8.58	0.00
2	1	9.53	0.95
3	2	10.50	1.92
4	3	11.35	2.77
5	4	12.07	3.49
6	5	12.75	4.17
7	6	13.40	4.82
8	7	14.00	5.42
9	8	14.56	5.98
10	9	15.06	6.48
11	10	15.61	7.03
12	11	16.14	7.56
13	12	16.65	8.07
14	13	17.13	8.55
15	14	17.60	9.02
16	15	18.04	9.46
17	16	18.46	9.88
18	17	18.86	10.28
19	18	19.24	10.66
20	19	19.60	11.02
21	20	19.96	11.38
22	21	20.28	11.70
23	22	20.60	12.02
24	23	20.90	12.32
25	24	21.18	12.60
26	25	21.45	12.87
27	26	21.70	13.12
28	27	21.95	13.37
29	28	22.18	13.60
30	29	22.40	13.82
31	30	22.61	14.03
32	31	22.81	14.23
33	32	23.01	14.43
34	33	23.20	14.62
35	34	23.37	14.79
36	35	23.54	14.96
37	36	23.69	15.11
38	37	23.84	15.26
39	38	23.98	15.40
40	39	24.13	15.55
41	40	24.27	15.69
42	41	24.41	15.83
43	42	24.53	15.95
44	43	24.64	16.06
45	44	24.77	16.19
46	45	24.88	16.30
47	46	24.99	16.41
48	47	25.09	16.51
49	48	25.20	16.62
50	49	25.29	16.71
51	50	25.39	16.81

	Time [min]	Water Level [m]	Drawdown [m]
52	51	25.48	16.90
53	52	25.56	16.98
54	53	25.64	17.06
55	54	25.72	17.14
56	55	25.78	17.20
57	56	25.85	17.27
58	57	25.92	17.34
59	58	25.99	17.41
60	59	26.07	17.49
61	60	26.12	17.54
62	61	26.17	17.59
63	62	26.22	17.64
64	63	26.28	17.70
65	64	26.33	17.75
66	65	26.39	17.81
67	66	26.45	17.87
68	67	26.49	17.91
69	68	26.52	17.94
70	69	26.58	18.00
71	70	26.64	18.06
72	71	26.67	18.09
73	72	26.71	18.13
74	73	26.75	18.17
75	74	26.79	18.21
76	75	26.83	18.25
77	76	26.87	18.29
78	77	26.90	18.32
79	78	26.94	18.36
80	79	26.99	18.41
81	80	27.01	18.43
82	81	27.05	18.47
83	82	27.08	18.50
84	83	27.10	18.52
85	84	27.15	18.57
86	85	27.18	18.60
87	86	27.20	18.62
88	87	27.24	18.66
89	88	27.26	18.68
90	89	27.29	18.71
91	90	27.31	18.73
92	91	27.34	18.76
93	92	27.36	18.78
94	93	27.39	18.81
95	94	27.42	18.84
96	95	27.44	18.86
97	96	27.47	18.89
98	97	27.49	18.91
99	98	27.51	18.93
100	99	27.54	18.96
101	100	27.56	18.98
102	101	27.57	18.99
103	102	27.59	19.01
104	103	27.61	19.03
105	104	27.63	19.05
106	105	27.66	19.08
107	106	27.68	19.10

	Time [min]	Water Level [m]	Drawdown [m]
108	107	27.67	19.09
109	108	27.70	19.12
110	109	27.70	19.12
111	110	27.73	19.15
112	111	27.72	19.14
113	112	27.74	19.16
114	113	27.75	19.17
115	114	27.77	19.19
116	115	27.78	19.20
117	116	27.80	19.22
118	117	27.81	19.23
119	118	27.82	19.24
120	119	27.83	19.25
121	120	27.85	19.27
122	121	27.86	19.28
123	122	27.88	19.30
124	123	27.89	19.31
125	124	27.89	19.31
126	125	27.90	19.32
127	126	27.91	19.33
128	127	27.92	19.34
129	128	27.93	19.35
130	129	27.93	19.35
131	130	27.94	19.36
132	131	27.95	19.37
133	132	27.97	19.39
134	133	27.98	19.40
135	134	27.97	19.39
136	135	27.99	19.41
137	136	28.00	19.42
138	137	28.01	19.43
139	138	28.01	19.43
140	139	28.01	19.43
141	140	28.01	19.43
142	141	28.01	19.43
143	142	28.02	19.44
144	143	28.02	19.44
145	144	28.02	19.44
146	145	28.03	19.45
147	146	28.02	19.44
148	147	28.02	19.44
149	148	28.03	19.45
150	149	28.04	19.46
151	150	28.04	19.46
152	151	28.04	19.46
153	152	28.06	19.48
154	153	28.05	19.47
155	154	28.05	19.47
156	155	28.06	19.48
157	156	28.07	19.49
158	157	28.08	19.50
159	158	28.08	19.50
160	159	28.09	19.51
161	160	28.09	19.51
162	161	28.11	19.53
163	162	28.12	19.54

	Time [min]	Water Level [m]	Drawdown [m]
164	163	28.12	19.54
165	164	28.13	19.55
166	165	28.14	19.56
167	166	28.15	19.57
168	167	28.15	19.57
169	168	28.17	19.59
170	169	28.17	19.59
171	170	28.18	19.60
172	171	28.19	19.61
173	172	28.19	19.61
174	173	28.22	19.64
175	174	28.22	19.64
176	175	28.23	19.65
177	176	28.23	19.65
178	177	28.25	19.67
179	178	28.25	19.67
180	179	28.26	19.68
181	180	28.28	19.70
182	181	28.28	19.70
183	182	28.30	19.72
184	183	28.31	19.73
185	184	28.32	19.74
186	185	28.34	19.76
187	186	28.34	19.76
188	187	28.35	19.77
189	188	28.36	19.78
190	189	28.36	19.78
191	190	28.37	19.79
192	191	28.39	19.81
193	192	28.38	19.80
194	193	28.39	19.81
195	194	28.39	19.81
196	195	28.40	19.82
197	196	28.41	19.83
198	197	28.41	19.83
199	198	28.43	19.85
200	199	28.42	19.84
201	200	28.42	19.84
202	201	28.42	19.84
203	202	28.41	19.83
204	203	28.44	19.86
205	204	28.43	19.85
206	205	28.44	19.86
207	206	28.45	19.87
208	207	28.44	19.86
209	208	28.45	19.87
210	209	28.46	19.88
211	210	28.47	19.89
212	211	28.47	19.89
213	212	28.49	19.91
214	213	28.49	19.91
215	214	28.49	19.91
216	215	28.49	19.91
217	216	28.50	19.92
218	217	28.52	19.94
219	218	28.53	19.95

	Time [min]	Water Level [m]	Drawdown [m]
220	219	28.53	19.95
221	220	28.54	19.96
222	221	28.52	19.94
223	222	28.54	19.96
224	223	28.54	19.96
225	224	28.52	19.94
226	225	28.55	19.97
227	226	28.54	19.96
228	227	28.55	19.97
229	228	28.56	19.98
230	229	28.56	19.98
231	230	28.56	19.98
232	231	28.55	19.97
233	232	28.54	19.96
234	233	28.55	19.97
235	234	28.55	19.97
236	235	28.55	19.97
237	236	28.56	19.98
238	237	28.57	19.99
239	238	28.57	19.99
240	239	28.56	19.98
241	240	28.56	19.98
242	241	28.56	19.98
243	242	28.58	20.00
244	243	28.59	20.01
245	244	28.57	19.99
246	245	28.59	20.01
247	246	28.60	20.02
248	247	28.60	20.02
249	248	28.61	20.03
250	249	28.61	20.03
251	250	28.62	20.04
252	251	28.62	20.04
253	252	28.63	20.05
254	253	28.62	20.04
255	254	28.64	20.06
256	255	28.63	20.05
257	256	28.64	20.06
258	257	28.65	20.07
259	258	28.64	20.06
260	259	28.65	20.07
261	260	28.66	20.08
262	261	28.66	20.08
263	262	28.67	20.09
264	263	28.67	20.09
265	264	28.68	20.10
266	265	28.68	20.10
267	266	28.68	20.10
268	267	28.69	20.11
269	268	28.69	20.11
270	269	28.69	20.11
271	270	28.69	20.11
272	271	28.70	20.12
273	272	28.70	20.12
274	273	28.70	20.12
275	274	28.70	20.12

	Time [min]	Water Level [m]	Drawdown [m]
276	275	28.70	20.12
277	276	28.72	20.14
278	277	28.72	20.14
279	278	28.73	20.15
280	279	28.73	20.15
281	280	28.74	20.16
282	281	28.74	20.16
283	282	28.75	20.17
284	283	28.76	20.18
285	284	28.76	20.18
286	285	28.76	20.18
287	286	28.76	20.18
288	287	28.76	20.18
289	288	28.77	20.19
290	289	28.77	20.19
291	290	28.78	20.20
292	291	28.78	20.20
293	292	28.77	20.19
294	293	28.77	20.19
295	294	28.78	20.20
296	295	28.77	20.19
297	296	28.79	20.21
298	297	28.80	20.22
299	298	28.80	20.22
300	299	28.80	20.22
301	300	28.80	20.22
302	301	28.81	20.23
303	302	28.81	20.23
304	303	28.81	20.23
305	304	28.81	20.23
306	305	28.81	20.23
307	306	28.82	20.24
308	307	28.82	20.24
309	308	28.82	20.24
310	309	28.82	20.24
311	310	28.82	20.24
312	311	28.83	20.25
313	312	28.82	20.24
314	313	28.83	20.25
315	314	28.84	20.26
316	315	28.84	20.26
317	316	28.85	20.27
318	317	28.85	20.27
319	318	28.85	20.27
320	319	28.85	20.27
321	320	28.85	20.27
322	321	28.86	20.28
323	322	28.86	20.28
324	323	28.85	20.27
325	324	28.85	20.27
326	325	28.86	20.28
327	326	28.87	20.29
328	327	28.86	20.28
329	328	28.88	20.30
330	329	28.87	20.29
331	330	28.88	20.30

	Time [min]	Water Level [m]	Drawdown [m]
332	331	28.88	20.30
333	332	28.89	20.31
334	333	28.89	20.31
335	334	28.90	20.32
336	335	28.90	20.32
337	336	28.89	20.31
338	337	28.90	20.32
339	338	28.89	20.31
340	339	28.90	20.32
341	340	28.90	20.32
342	341	28.91	20.33
343	342	28.91	20.33
344	343	28.91	20.33
345	344	28.90	20.32
346	345	28.91	20.33
347	346	28.91	20.33
348	347	28.91	20.33
349	348	28.90	20.32
350	349	28.91	20.33
351	350	28.91	20.33
352	351	28.91	20.33
353	352	28.92	20.34
354	353	28.93	20.35
355	354	28.92	20.34
356	355	28.92	20.34
357	356	28.92	20.34
358	357	28.93	20.35
359	358	28.94	20.36
360	359	28.94	20.36
361	360	28.94	20.36
362	361	28.93	20.35
363	362	28.94	20.36
364	363	28.93	20.35
365	364	28.95	20.37
366	365	28.95	20.37
367	366	28.95	20.37
368	367	28.94	20.36
369	368	28.93	20.35
370	369	28.93	20.35
371	370	28.94	20.36
372	371	28.94	20.36
373	372	28.93	20.35
374	373	28.94	20.36
375	374	28.95	20.37
376	375	28.96	20.38
377	376	28.95	20.37
378	377	28.95	20.37
379	378	28.94	20.36
380	379	28.96	20.38
381	380	28.96	20.38
382	381	28.94	20.36
383	382	27.78	19.20
384	383	26.64	18.06
385	384	25.75	17.17
386	385	24.92	16.34
387	386	24.12	15.54

	Time [min]	Water Level [m]	Drawdown [m]
388	387	23.34	14.76
389	388	22.60	14.02
390	389	21.88	13.30
391	390	21.21	12.63
392	391	20.55	11.97
393	392	19.91	11.33
394	393	19.31	10.73
395	394	18.76	10.18
396	395	18.23	9.65
397	396	17.72	9.14
398	397	17.23	8.65
399	398	16.77	8.19
400	399	16.34	7.76
401	400	15.93	7.35
402	401	15.54	6.96
403	402	15.18	6.60
404	403	14.84	6.26
405	404	14.60	6.02
406	405	14.31	5.73
407	406	14.03	5.45
408	407	13.76	5.18
409	408	13.52	4.94
410	409	13.30	4.72
411	410	13.08	4.50
412	411	12.88	4.30
413	412	12.69	4.11
414	413	12.51	3.93
415	414	12.34	3.76
416	415	12.19	3.61
417	416	12.05	3.47
418	417	11.92	3.34
419	418	11.79	3.21
420	419	11.65	3.07
421	420	11.55	2.97
422	421	11.43	2.85
423	422	11.32	2.74
424	423	11.22	2.64
425	424	11.12	2.54
426	425	11.04	2.46
427	426	10.97	2.39
428	427	10.88	2.30
429	428	10.82	2.24
430	429	10.74	2.16
431	430	10.69	2.11
432	431	10.63	2.05
433	432	10.58	2.00
434	433	10.53	1.95
435	434	10.46	1.88
436	435	10.43	1.85
437	436	10.38	1.80
438	437	10.34	1.76
439	438	10.31	1.73
440	439	10.28	1.70
441	440	10.27	1.69
442	441	10.25	1.67
443	442	10.21	1.63

	Time [min]	Water Level [m]	Drawdown [m]
444	443	10.18	1.60
445	444	10.16	1.58
446	445	10.14	1.56
447	446	10.12	1.54
448	447	10.10	1.52
449	448	10.08	1.50
450	449	10.06	1.48
451	450	10.05	1.47
452	451	10.02	1.44
453	452	10.01	1.43
454	453	9.99	1.41
455	454	9.98	1.40
456	455	9.97	1.39
457	456	9.96	1.38
458	457	9.94	1.36
459	458	9.93	1.35
460	459	9.92	1.34
461	460	9.91	1.33
462	461	9.89	1.31
463	462	9.88	1.30
464	463	9.87	1.29
465	464	9.86	1.28
466	465	9.86	1.28
467	466	9.85	1.27
468	467	9.84	1.26
469	468	9.82	1.24
470	469	9.81	1.23
471	470	9.81	1.23
472	471	9.80	1.22
473	472	9.80	1.22
474	473	9.79	1.21
475	474	9.78	1.20
476	475	9.77	1.19
477	476	9.77	1.19
478	477	9.76	1.18
479	478	9.76	1.18
480	479	9.75	1.17
481	480	9.74	1.16
482	481	9.74	1.16
483	482	9.74	1.16
484	483	9.74	1.16
485	484	9.73	1.15
486	485	9.73	1.15
487	486	9.72	1.14
488	487	9.72	1.14
489	488	9.71	1.13
490	489	9.71	1.13
491	490	9.70	1.12
492	491	9.70	1.12
493	492	9.69	1.11
494	493	9.69	1.11
495	494	9.68	1.10
496	495	9.68	1.10
497	496	9.68	1.10
498	497	9.67	1.09
499	498	9.66	1.08

	Time [min]	Water Level [m]	Drawdown [m]
500	499	9.65	1.07
501	500	9.65	1.07
502	501	9.64	1.06
503	502	9.64	1.06
504	503	9.64	1.06
505	504	9.63	1.05
506	505	9.63	1.05
507	506	9.62	1.04
508	507	9.61	1.03
509	508	9.62	1.04
510	509	9.61	1.03
511	510	9.61	1.03
512	511	9.60	1.02
513	512	9.60	1.02
514	513	9.60	1.02
515	514	9.60	1.02
516	515	9.60	1.02
517	516	9.61	1.03
518	517	9.60	1.02
519	518	9.60	1.02
520	519	9.59	1.01
521	520	9.58	1.00
522	521	9.58	1.00
523	522	9.58	1.00
524	523	9.58	1.00
525	524	9.57	0.99
526	525	9.57	0.99
527	526	9.57	0.99
528	527	9.57	0.99
529	528	9.56	0.98
530	529	9.55	0.97
531	530	9.57	0.99
532	531	9.56	0.98
533	532	9.55	0.97
534	533	9.55	0.97
535	534	9.54	0.96
536	535	9.54	0.96
537	536	9.55	0.97
538	537	9.55	0.97
539	538	9.55	0.97
540	539	9.54	0.96
541	540	9.53	0.95
542	541	9.54	0.96
543	542	9.54	0.96
544	543	9.54	0.96
545	544	9.54	0.96
546	545	9.54	0.96
547	546	9.54	0.96
548	547	9.54	0.96
549	548	9.54	0.96
550	549	9.52	0.94
551	550	9.53	0.95
552	551	9.51	0.93
553	552	9.51	0.93
554	553	9.50	0.92
555	554	9.51	0.93

	Time [min]	Water Level [m]	Drawdown [m]
556	555	9.51	0.93
557	556	9.50	0.92
558	557	9.50	0.92
559	558	9.50	0.92
560	559	9.50	0.92
561	560	9.50	0.92
562	561	9.50	0.92
563	562	9.50	0.92
564	563	9.49	0.91
565	564	9.49	0.91
566	565	9.49	0.91
567	566	9.49	0.91
568	567	9.49	0.91
569	568	9.49	0.91
570	569	9.48	0.90
571	570	9.48	0.90
572	571	9.47	0.89
573	572	9.46	0.88
574	573	9.47	0.89
575	574	9.46	0.88
576	575	9.46	0.88
577	576	9.46	0.88
578	577	9.45	0.87
579	578	9.47	0.89
580	579	9.46	0.88
581	580	9.46	0.88
582	581	9.46	0.88
583	582	9.45	0.87
584	583	9.46	0.88
585	584	9.46	0.88
586	585	9.45	0.87
587	586	9.45	0.87
588	587	9.45	0.87
589	588	9.45	0.87
590	589	9.44	0.86
591	590	9.45	0.87
592	591	9.45	0.87
593	592	9.44	0.86
594	593	9.44	0.86
595	594	9.45	0.87
596	595	9.44	0.86
597	596	9.44	0.86
598	597	9.44	0.86
599	598	9.43	0.85
600	599	9.43	0.85
601	600	9.44	0.86
602	601	9.43	0.85
603	602	9.43	0.85
604	603	9.43	0.85
605	604	9.43	0.85
606	605	9.43	0.85
607	606	9.43	0.85
608	607	9.42	0.84
609	608	9.42	0.84
610	609	9.41	0.83
611	610	9.41	0.83

	Time [min]	Water Level [m]	Drawdown [m]
612	611	9.41	0.83
613	612	9.41	0.83
614	613	9.42	0.84
615	614	9.41	0.83
616	615	9.41	0.83
617	616	9.40	0.82
618	617	9.41	0.83
619	618	9.41	0.83
620	619	9.40	0.82
621	620	9.40	0.82
622	621	9.40	0.82
623	622	9.39	0.81
624	623	9.40	0.82
625	624	9.40	0.82
626	625	9.38	0.80
627	626	9.39	0.81
628	627	9.39	0.81
629	628	9.39	0.81
630	629	9.38	0.80
631	630	9.39	0.81
632	631	9.37	0.79
633	632	9.37	0.79
634	633	9.37	0.79
635	634	9.37	0.79
636	635	9.37	0.79
637	636	9.37	0.79
638	637	9.37	0.79
639	638	9.38	0.80
640	639	9.38	0.80
641	640	9.38	0.80
642	641	9.38	0.80
643	642	9.37	0.79
644	643	9.37	0.79
645	644	9.37	0.79
646	645	9.36	0.78
647	646	9.36	0.78
648	647	9.35	0.77
649	648	9.35	0.77
650	649	9.35	0.77
651	650	9.35	0.77
652	651	9.36	0.78
653	652	9.36	0.78
654	653	9.36	0.78
655	654	9.37	0.79
656	655	9.36	0.78
657	656	9.36	0.78
658	657	9.36	0.78
659	658	9.35	0.77
660	659	9.35	0.77
661	660	9.34	0.76
662	661	9.36	0.78
663	662	9.35	0.77
664	663	9.35	0.77
665	664	9.35	0.77
666	665	9.35	0.77
667	666	9.35	0.77

	Time [min]	Water Level [m]	Drawdown [m]
668	667	9.35	0.77
669	668	9.34	0.76
670	669	9.35	0.77
671	670	9.33	0.75
672	671	9.34	0.76
673	672	9.33	0.75
674	673	9.34	0.76
675	674	9.33	0.75
676	675	9.34	0.76
677	676	9.33	0.75
678	677	9.33	0.75
679	678	9.33	0.75
680	679	9.33	0.75
681	680	9.34	0.76
682	681	9.32	0.74
683	682	9.33	0.75
684	683	9.33	0.75
685	684	9.33	0.75
686	685	9.33	0.75
687	686	9.31	0.73
688	687	9.31	0.73
689	688	9.32	0.74
690	689	9.32	0.74
691	690	9.31	0.73
692	691	9.31	0.73
693	692	9.31	0.73
694	693	9.30	0.72
695	694	9.31	0.73
696	695	9.31	0.73
697	696	9.31	0.73
698	697	9.30	0.72
699	698	9.30	0.72
700	699	9.31	0.73
701	700	9.30	0.72
702	701	9.30	0.72
703	702	9.30	0.72
704	703	9.30	0.72
705	704	9.29	0.71
706	705	9.30	0.72
707	706	9.29	0.71
708	707	9.29	0.71
709	708	9.29	0.71
710	709	9.29	0.71
711	710	9.29	0.71
712	711	9.29	0.71
713	712	9.28	0.70
714	713	9.28	0.70
715	714	9.28	0.70
716	715	9.29	0.71
717	716	9.28	0.70
718	717	9.28	0.70
719	718	9.27	0.69
720	719	9.28	0.70
721	720	9.28	0.70
722	721	9.27	0.69
723	722	9.27	0.69

	Time [min]	Water Level [m]	Drawdown [m]
724	723	9.27	0.69
725	724	9.27	0.69
726	725	9.27	0.69
727	726	9.27	0.69
728	727	9.27	0.69
729	728	9.26	0.68
730	729	9.27	0.69
731	730	9.27	0.69
732	731	9.27	0.69
733	732	9.27	0.69
734	733	9.27	0.69
735	734	9.28	0.70
736	735	9.27	0.69
737	736	9.27	0.69
738	737	9.26	0.68
739	738	9.26	0.68
740	739	9.26	0.68
741	740	9.26	0.68
742	741	9.26	0.68
743	742	9.26	0.68
744	743	9.26	0.68
745	744	9.26	0.68
746	745	9.25	0.67
747	746	9.26	0.68
748	747	9.26	0.68
749	748	9.24	0.66
750	749	9.25	0.67
751	750	9.25	0.67
752	751	9.25	0.67
753	752	9.25	0.67
754	753	9.25	0.67
755	754	9.25	0.67
756	755	9.25	0.67
757	756	9.25	0.67
758	757	9.25	0.67
759	758	9.25	0.67
760	759	9.23	0.65
761	760	9.23	0.65
762	761	9.23	0.65
763	762	9.23	0.65
764	763	9.25	0.67
765	764	9.23	0.65
766	765	9.24	0.66
767	766	9.24	0.66
768	767	9.23	0.65
769	768	9.23	0.65
770	769	9.23	0.65
771	770	9.23	0.65
772	771	9.24	0.66
773	772	9.24	0.66
774	773	9.23	0.65
775	774	9.22	0.64
776	775	9.22	0.64
777	776	9.22	0.64
778	777	9.22	0.64
779	778	9.22	0.64

	Time [min]	Water Level [m]	Drawdown [m]
780	779	9.21	0.63
781	780	9.23	0.65
782	781	9.23	0.65
783	782	9.23	0.65
784	783	9.22	0.64
785	784	9.23	0.65
786	785	9.22	0.64
787	786	9.22	0.64
788	787	9.22	0.64
789	788	9.21	0.63
790	789	9.22	0.64
791	790	9.22	0.64
792	791	9.22	0.64
793	792	9.22	0.64
794	793	9.21	0.63
795	794	9.22	0.64
796	795	9.22	0.64
797	796	9.22	0.64
798	797	9.21	0.63
799	798	9.22	0.64
800	799	9.20	0.62
801	800	9.20	0.62
802	801	9.20	0.62
803	802	9.20	0.62
804	803	9.20	0.62
805	804	9.20	0.62
806	805	9.20	0.62
807	806	9.20	0.62
808	807	9.20	0.62
809	808	9.20	0.62
810	809	9.20	0.62
811	810	9.21	0.63
812	811	9.20	0.62
813	812	9.20	0.62
814	813	9.20	0.62
815	814	9.20	0.62
816	815	9.20	0.62
817	816	9.20	0.62
818	817	9.20	0.62
819	818	9.20	0.62
820	819	9.19	0.61
821	820	9.20	0.62
822	821	9.20	0.62
823	822	9.20	0.62
824	823	9.20	0.62
825	824	9.20	0.62
826	825	9.20	0.62
827	826	9.20	0.62
828	827	9.19	0.61
829	828	9.19	0.61
830	829	9.19	0.61
831	830	9.19	0.61
832	831	9.19	0.61
833	832	9.19	0.61
834	833	9.19	0.61
835	834	9.19	0.61

	Time [min]	Water Level [m]	Drawdown [m]
836	835	9.19	0.61
837	836	9.18	0.60
838	837	9.18	0.60
839	838	9.18	0.60
840	839	9.18	0.60
841	840	9.18	0.60
842	841	9.18	0.60
843	842	9.18	0.60
844	843	9.18	0.60
845	844	9.18	0.60
846	845	9.18	0.60
847	846	9.18	0.60
848	847	9.18	0.60
849	848	9.17	0.59
850	849	9.17	0.59
851	850	9.17	0.59
852	851	9.17	0.59
853	852	9.17	0.59
854	853	9.17	0.59
855	854	9.17	0.59
856	855	9.17	0.59
857	856	9.17	0.59
858	857	9.17	0.59
859	858	9.17	0.59
860	859	9.17	0.59
861	860	9.17	0.59
862	861	9.17	0.59
863	862	9.17	0.59
864	863	9.16	0.58
865	864	9.17	0.59
866	865	9.16	0.58
867	866	9.16	0.58
868	867	9.16	0.58
869	868	9.17	0.59
870	869	9.17	0.59
871	870	9.16	0.58
872	871	9.16	0.58
873	872	9.16	0.58
874	873	9.16	0.58
875	874	9.16	0.58
876	875	9.16	0.58
877	876	9.17	0.59
878	877	9.15	0.57
879	878	9.15	0.57
880	879	9.15	0.57
881	880	9.16	0.58
882	881	9.15	0.57
883	882	9.16	0.58
884	883	9.16	0.58
885	884	9.15	0.57
886	885	9.14	0.56
887	886	9.16	0.58
888	887	9.15	0.57
889	888	9.14	0.56
890	889	9.14	0.56
891	890	9.14	0.56

	Time [min]	Water Level [m]	Drawdown [m]
892	891	9.15	0.57
893	892	9.14	0.56
894	893	9.14	0.56
895	894	9.14	0.56
896	895	9.14	0.56
897	896	9.14	0.56
898	897	9.14	0.56
899	898	9.15	0.57
900	899	9.15	0.57
901	900	9.15	0.57
902	901	9.15	0.57
903	902	9.15	0.57
904	903	9.14	0.56
905	904	9.14	0.56
906	905	9.14	0.56
907	906	9.14	0.56
908	907	9.14	0.56
909	908	9.13	0.55
910	909	9.13	0.55
911	910	9.13	0.55
912	911	9.14	0.56
913	912	9.14	0.56
914	913	9.14	0.56
915	914	9.13	0.55
916	915	9.16	0.58
917	916	9.14	0.56
918	917	9.14	0.56
919	918	9.13	0.55
920	919	9.13	0.55
921	920	9.13	0.55
922	921	9.13	0.55
923	922	9.13	0.55
924	923	9.12	0.54
925	924	9.13	0.55
926	925	9.13	0.55
927	926	9.13	0.55
928	927	9.13	0.55
929	928	9.13	0.55
930	929	9.12	0.54
931	930	9.12	0.54
932	931	9.12	0.54
933	932	9.12	0.54
934	933	9.13	0.55
935	934	9.12	0.54
936	935	9.12	0.54
937	936	9.12	0.54
938	937	9.12	0.54
939	938	9.12	0.54
940	939	9.12	0.54
941	940	9.13	0.55
942	941	9.11	0.53
943	942	9.12	0.54
944	943	9.11	0.53
945	944	9.11	0.53
946	945	9.11	0.53
947	946	9.11	0.53

	Time [min]	Water Level [m]	Drawdown [m]
948	947	9.11	0.53
949	948	9.12	0.54
950	949	9.12	0.54
951	950	9.11	0.53
952	951	9.12	0.54
953	952	9.12	0.54
954	953	9.12	0.54
955	954	9.12	0.54
956	955	9.11	0.53
957	956	9.11	0.53
958	957	9.11	0.53
959	958	9.11	0.53
960	959	9.11	0.53
961	960	9.11	0.53
962	961	9.11	0.53
963	962	9.11	0.53
964	963	9.11	0.53
965	964	9.11	0.53
966	965	9.11	0.53
967	966	9.11	0.53
968	967	9.11	0.53
969	968	9.12	0.54
970	969	9.11	0.53
971	970	9.11	0.53
972	971	9.11	0.53
973	972	9.12	0.54
974	973	9.11	0.53
975	974	9.12	0.54
976	975	9.11	0.53
977	976	9.11	0.53
978	977	9.11	0.53
979	978	9.11	0.53
980	979	9.11	0.53
981	980	9.11	0.53
982	981	9.11	0.53
983	982	9.11	0.53
984	983	9.10	0.52
985	984	9.10	0.52
986	985	9.11	0.53
987	986	9.11	0.53
988	987	9.11	0.53
989	988	9.11	0.53
990	989	9.10	0.52
991	990	9.11	0.53
992	991	9.11	0.53
993	992	9.11	0.53
994	993	9.11	0.53
995	994	9.11	0.53
996	995	9.10	0.52
997	996	9.10	0.52
998	997	9.10	0.52
999	998	9.10	0.52
1000	999	9.11	0.53
1001	1000	9.10	0.52
1002	1001	9.10	0.52
1003	1002	9.10	0.52

	Time [min]	Water Level [m]	Drawdown [m]
1004	1003	9.10	0.52
1005	1004	9.10	0.52
1006	1005	9.10	0.52
1007	1006	9.10	0.52
1008	1007	9.09	0.51
1009	1008	9.10	0.52
1010	1009	9.10	0.52
1011	1010	9.10	0.52
1012	1011	9.10	0.52
1013	1012	9.10	0.52
1014	1013	9.10	0.52
1015	1014	9.09	0.51
1016	1015	9.10	0.52
1017	1016	9.09	0.51
1018	1017	9.10	0.52
1019	1018	9.09	0.51
1020	1019	9.09	0.51
1021	1020	9.09	0.51
1022	1021	9.09	0.51
1023	1022	9.09	0.51
1024	1023	9.09	0.51
1025	1024	9.09	0.51
1026	1025	9.09	0.51
1027	1026	9.09	0.51
1028	1027	9.09	0.51
1029	1028	9.09	0.51
1030	1029	9.09	0.51
1031	1030	9.09	0.51
1032	1031	9.09	0.51
1033	1032	9.09	0.51
1034	1033	9.09	0.51
1035	1034	9.09	0.51
1036	1035	9.09	0.51
1037	1036	9.08	0.50
1038	1037	9.08	0.50
1039	1038	9.08	0.50
1040	1039	9.08	0.50
1041	1040	9.08	0.50
1042	1041	9.09	0.51
1043	1042	9.09	0.51
1044	1043	9.09	0.51
1045	1044	9.08	0.50
1046	1045	9.08	0.50
1047	1046	9.08	0.50
1048	1047	9.08	0.50
1049	1048	9.08	0.50
1050	1049	9.08	0.50
1051	1050	9.08	0.50
1052	1051	9.08	0.50
1053	1052	9.08	0.50
1054	1053	9.08	0.50
1055	1054	9.08	0.50
1056	1055	9.08	0.50
1057	1056	9.07	0.49
1058	1057	9.08	0.50
1059	1058	9.07	0.49

	Time [min]	Water Level [m]	Drawdown [m]
1060	1059	9.07	0.49
1061	1060	9.08	0.50
1062	1061	9.08	0.50
1063	1062	9.07	0.49
1064	1063	9.07	0.49
1065	1064	9.07	0.49
1066	1065	9.07	0.49
1067	1066	9.07	0.49
1068	1067	9.07	0.49
1069	1068	9.08	0.50
1070	1069	9.08	0.50
1071	1070	9.08	0.50
1072	1071	9.09	0.51
1073	1072	9.09	0.51
1074	1073	9.09	0.51
1075	1074	9.09	0.51
1076	1075	9.07	0.49
1077	1076	9.08	0.50
1078	1077	9.07	0.49
1079	1078	9.07	0.49
1080	1079	9.08	0.50
1081	1080	9.09	0.51
1082	1081	9.09	0.51
1083	1082	9.09	0.51
1084	1083	9.08	0.50
1085	1084	9.08	0.50
1086	1085	9.08	0.50
1087	1086	9.08	0.50
1088	1087	9.09	0.51
1089	1088	9.08	0.50
1090	1089	9.08	0.50
1091	1090	9.07	0.49
1092	1091	9.07	0.49
1093	1092	9.08	0.50
1094	1093	9.08	0.50
1095	1094	9.07	0.49
1096	1095	9.06	0.48
1097	1096	9.07	0.49
1098	1097	9.07	0.49
1099	1098	9.07	0.49
1100	1099	9.08	0.50
1101	1100	9.06	0.48
1102	1101	9.07	0.49
1103	1102	9.07	0.49
1104	1103	9.07	0.49
1105	1104	9.07	0.49
1106	1105	9.06	0.48
1107	1106	9.07	0.49
1108	1107	9.06	0.48
1109	1108	9.06	0.48
1110	1109	9.06	0.48
1111	1110	9.07	0.49
1112	1111	9.06	0.48
1113	1112	9.06	0.48
1114	1113	9.06	0.48
1115	1114	9.06	0.48

	Time [min]	Water Level [m]	Drawdown [m]
1116	1115	9.06	0.48
1117	1116	9.06	0.48
1118	1117	9.06	0.48
1119	1118	9.06	0.48
1120	1119	9.06	0.48
1121	1120	9.06	0.48
1122	1121	9.06	0.48
1123	1122	9.06	0.48
1124	1123	9.06	0.48
1125	1124	9.06	0.48
1126	1125	9.06	0.48
1127	1126	9.06	0.48
1128	1127	9.06	0.48
1129	1128	9.06	0.48
1130	1129	9.06	0.48
1131	1130	9.06	0.48
1132	1131	9.06	0.48
1133	1132	9.06	0.48
1134	1133	9.06	0.48
1135	1134	9.06	0.48
1136	1135	9.06	0.48
1137	1136	9.06	0.48
1138	1137	9.06	0.48
1139	1138	9.06	0.48
1140	1139	9.06	0.48
1141	1140	9.06	0.48
1142	1141	9.06	0.48
1143	1142	9.05	0.47
1144	1143	9.06	0.48
1145	1144	9.06	0.48
1146	1145	9.05	0.47
1147	1146	9.05	0.47
1148	1147	9.05	0.47
1149	1148	9.06	0.48
1150	1149	9.06	0.48
1151	1150	9.06	0.48
1152	1151	9.05	0.47
1153	1152	9.05	0.47
1154	1153	9.06	0.48
1155	1154	9.06	0.48
1156	1155	9.05	0.47
1157	1156	9.04	0.46
1158	1157	9.06	0.48
1159	1158	9.05	0.47
1160	1159	9.05	0.47
1161	1160	9.05	0.47
1162	1161	9.05	0.47
1163	1162	9.05	0.47
1164	1163	9.05	0.47
1165	1164	9.05	0.47
1166	1165	9.06	0.48
1167	1166	9.05	0.47
1168	1167	9.05	0.47
1169	1168	9.05	0.47
1170	1169	9.05	0.47
1171	1170	9.05	0.47

	Time [min]	Water Level [m]	Drawdown [m]
1172	1171	9.05	0.47
1173	1172	9.05	0.47
1174	1173	9.05	0.47
1175	1174	9.05	0.47
1176	1175	9.05	0.47
1177	1176	9.04	0.46
1178	1177	9.05	0.47
1179	1178	9.05	0.47
1180	1179	9.05	0.47
1181	1180	9.05	0.47
1182	1181	9.05	0.47
1183	1182	9.04	0.46
1184	1183	9.05	0.47
1185	1184	9.05	0.47
1186	1185	9.05	0.47
1187	1186	9.05	0.47
1188	1187	9.04	0.46
1189	1188	9.04	0.46
1190	1189	9.05	0.47
1191	1190	9.05	0.47
1192	1191	9.04	0.46
1193	1192	9.05	0.47
1194	1193	9.04	0.46
1195	1194	9.04	0.46
1196	1195	9.04	0.46
1197	1196	9.04	0.46
1198	1197	9.04	0.46
1199	1198	9.04	0.46
1200	1199	9.04	0.46
1201	1200	9.04	0.46
1202	1201	9.04	0.46
1203	1202	9.04	0.46
1204	1203	9.03	0.45
1205	1204	9.04	0.46
1206	1205	9.04	0.46
1207	1206	9.04	0.46
1208	1207	9.04	0.46
1209	1208	9.03	0.45
1210	1209	9.03	0.45
1211	1210	9.04	0.46
1212	1211	9.04	0.46
1213	1212	9.04	0.46
1214	1213	9.03	0.45
1215	1214	9.03	0.45
1216	1215	9.04	0.46
1217	1216	9.04	0.46
1218	1217	9.04	0.46
1219	1218	9.04	0.46
1220	1219	9.04	0.46
1221	1220	9.04	0.46
1222	1221	9.03	0.45
1223	1222	9.04	0.46
1224	1223	9.03	0.45
1225	1224	9.03	0.45
1226	1225	9.04	0.46
1227	1226	9.03	0.45

	Time [min]	Water Level [m]	Drawdown [m]
1228	1227	9.03	0.45
1229	1228	9.04	0.46
1230	1229	9.03	0.45
1231	1230	9.03	0.45
1232	1231	9.03	0.45
1233	1232	9.03	0.45
1234	1233	9.03	0.45
1235	1234	9.03	0.45
1236	1235	9.04	0.46
1237	1236	9.04	0.46
1238	1237	9.03	0.45
1239	1238	9.03	0.45
1240	1239	9.03	0.45
1241	1240	9.03	0.45
1242	1241	9.03	0.45
1243	1242	9.03	0.45
1244	1243	9.03	0.45
1245	1244	9.03	0.45
1246	1245	9.03	0.45
1247	1246	9.03	0.45
1248	1247	9.03	0.45
1249	1248	9.03	0.45
1250	1249	9.03	0.45
1251	1250	9.03	0.45
1252	1251	9.03	0.45
1253	1252	9.03	0.45
1254	1253	9.03	0.45
1255	1254	9.02	0.44
1256	1255	9.03	0.45
1257	1256	9.03	0.45
1258	1257	9.03	0.45
1259	1258	9.03	0.45
1260	1259	9.03	0.45
1261	1260	9.03	0.45
1262	1261	9.03	0.45
1263	1262	9.03	0.45
1264	1263	9.03	0.45
1265	1264	9.03	0.45
1266	1265	9.03	0.45
1267	1266	9.03	0.45
1268	1267	9.03	0.45
1269	1268	9.02	0.44
1270	1269	9.02	0.44
1271	1270	9.03	0.45
1272	1271	9.02	0.44
1273	1272	9.03	0.45
1274	1273	9.02	0.44
1275	1274	9.03	0.45
1276	1275	9.03	0.45
1277	1276	9.03	0.45
1278	1277	9.02	0.44
1279	1278	9.02	0.44
1280	1279	9.03	0.45
1281	1280	9.03	0.45
1282	1281	9.03	0.45
1283	1282	9.03	0.45

	Time [min]	Water Level [m]	Drawdown [m]
1284	1283	9.03	0.45
1285	1284	9.02	0.44
1286	1285	9.03	0.45
1287	1286	9.02	0.44
1288	1287	9.03	0.45
1289	1288	9.03	0.45
1290	1289	9.02	0.44
1291	1290	9.02	0.44
1292	1291	9.02	0.44
1293	1292	9.01	0.43
1294	1293	9.02	0.44
1295	1294	9.02	0.44
1296	1295	9.02	0.44
1297	1296	9.02	0.44
1298	1297	9.01	0.43
1299	1298	9.01	0.43
1300	1299	9.02	0.44
1301	1300	9.01	0.43
1302	1301	9.02	0.44
1303	1302	9.02	0.44
1304	1303	9.02	0.44
1305	1304	9.02	0.44
1306	1305	9.01	0.43
1307	1306	9.02	0.44
1308	1307	9.02	0.44
1309	1308	9.02	0.44
1310	1309	9.01	0.43
1311	1310	9.02	0.44
1312	1311	9.02	0.44
1313	1312	9.02	0.44
1314	1313	9.01	0.43
1315	1314	9.02	0.44
1316	1315	9.01	0.43
1317	1316	9.01	0.43
1318	1317	9.01	0.43
1319	1318	9.01	0.43
1320	1319	9.01	0.43
1321	1320	9.00	0.42
1322	1321	9.01	0.43
1323	1322	9.01	0.43
1324	1323	9.01	0.43
1325	1324	9.01	0.43
1326	1325	9.01	0.43
1327	1326	9.02	0.44
1328	1327	9.01	0.43
1329	1328	9.01	0.43
1330	1329	9.01	0.43
1331	1330	9.01	0.43
1332	1331	9.01	0.43
1333	1332	9.01	0.43
1334	1333	9.01	0.43
1335	1334	9.01	0.43
1336	1335	9.01	0.43
1337	1336	9.01	0.43
1338	1337	9.01	0.43
1339	1338	9.01	0.43

	Time [min]	Water Level [m]	Drawdown [m]
1340	1339	9.01	0.43
1341	1340	9.01	0.43
1342	1341	9.01	0.43
1343	1342	9.00	0.42
1344	1343	9.01	0.43
1345	1344	9.01	0.43
1346	1345	9.01	0.43
1347	1346	9.01	0.43
1348	1347	9.01	0.43
1349	1348	9.00	0.42
1350	1349	9.00	0.42
1351	1350	9.01	0.43
1352	1351	9.00	0.42
1353	1352	9.00	0.42
1354	1353	9.00	0.42
1355	1354	9.01	0.43
1356	1355	9.01	0.43
1357	1356	9.00	0.42
1358	1357	9.00	0.42
1359	1358	9.00	0.42
1360	1359	9.00	0.42
1361	1360	9.00	0.42
1362	1361	9.00	0.42
1363	1362	9.00	0.42
1364	1363	9.01	0.43
1365	1364	9.01	0.43
1366	1365	9.00	0.42
1367	1366	9.00	0.42
1368	1367	9.01	0.43
1369	1368	9.00	0.42
1370	1369	9.00	0.42
1371	1370	9.00	0.42
1372	1371	9.00	0.42
1373	1372	9.00	0.42
1374	1373	9.01	0.43
1375	1374	9.01	0.43
1376	1375	9.01	0.43
1377	1376	9.01	0.43
1378	1377	9.00	0.42
1379	1378	9.01	0.43
1380	1379	9.01	0.43
1381	1380	9.01	0.43
1382	1381	9.00	0.42
1383	1382	9.00	0.42
1384	1383	9.00	0.42
1385	1384	9.01	0.43
1386	1385	9.00	0.42
1387	1386	9.00	0.42
1388	1387	9.00	0.42
1389	1388	9.00	0.42
1390	1389	9.00	0.42
1391	1390	9.00	0.42
1392	1391	9.00	0.42
1393	1392	9.00	0.42
1394	1393	9.00	0.42
1395	1394	9.00	0.42

	Time [min]	Water Level [m]	Drawdown [m]
1396	1395	8.99	0.41
1397	1396	8.99	0.41
1398	1397	9.00	0.42
1399	1398	9.00	0.42
1400	1399	9.00	0.42
1401	1400	9.00	0.42
1402	1401	8.99	0.41
1403	1402	8.99	0.41
1404	1403	9.00	0.42
1405	1404	8.99	0.41
1406	1405	8.99	0.41
1407	1406	9.00	0.42
1408	1407	9.00	0.42
1409	1408	9.00	0.42
1410	1409	8.99	0.41
1411	1410	8.99	0.41
1412	1411	8.99	0.41
1413	1412	8.99	0.41
1414	1413	8.99	0.41
1415	1414	8.99	0.41
1416	1415	8.99	0.41
1417	1416	8.99	0.41
1418	1417	8.99	0.41
1419	1418	8.99	0.41
1420	1419	8.99	0.41
1421	1420	8.99	0.41
1422	1421	9.00	0.42
1423	1422	9.00	0.42
1424	1423	8.99	0.41
1425	1424	8.99	0.41
1426	1425	8.99	0.41
1427	1426	8.99	0.41
1428	1427	8.99	0.41
1429	1428	8.99	0.41
1430	1429	8.99	0.41
1431	1430	8.99	0.41
1432	1431	8.99	0.41
1433	1432	8.99	0.41
1434	1433	8.99	0.41
1435	1434	8.99	0.41
1436	1435	8.99	0.41
1437	1436	8.99	0.41
1438	1437	8.99	0.41
1439	1438	8.99	0.41
1440	1439	8.99	0.41
1441	1440	8.99	0.41
1442	1441	8.98	0.40
1443	1442	8.98	0.40
1444	1443	8.99	0.41
1445	1444	8.99	0.41
1446	1445	8.98	0.40
1447	1446	8.99	0.41
1448	1447	8.98	0.40
1449	1448	8.98	0.40
1450	1449	8.97	0.39
1451	1450	8.98	0.40

	Time [min]	Water Level [m]	Drawdown [m]
1452	1451	8.97	0.39
1453	1452	8.99	0.41
1454	1453	8.97	0.39
1455	1454	8.97	0.39
1456	1455	8.97	0.39
1457	1456	8.97	0.39
1458	1457	8.97	0.39
1459	1458	8.98	0.40
1460	1459	8.97	0.39
1461	1460	8.97	0.39
1462	1461	8.97	0.39
1463	1462	8.96	0.38
1464	1463	8.96	0.38
1465	1464	8.96	0.38
1466	1465	8.97	0.39
1467	1466	8.96	0.38
1468	1467	8.96	0.38
1469	1468	8.96	0.38
1470	1469	8.98	0.40
1471	1470	8.97	0.39
1472	1471	8.96	0.38
1473	1472	8.96	0.38
1474	1473	8.96	0.38
1475	1474	8.97	0.39
1476	1475	8.97	0.39
1477	1476	8.96	0.38
1478	1477	8.96	0.38
1479	1478	8.96	0.38
1480	1479	8.97	0.39
1481	1480	8.96	0.38
1482	1481	8.96	0.38
1483	1482	8.96	0.38
1484	1483	8.96	0.38
1485	1484	8.97	0.39
1486	1485	8.96	0.38
1487	1486	8.96	0.38

APPENDIX J

SIX HOUR PUMP TEST WATER TEST RESULTS

EXOVA ACCUTEST REPORTS OF ANALYSES

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1010895
Date: 2010-05-21
Date Submitted: 2010-05-18
Project: 10-025-2
P.O. Number:
Matrix: Water

Chain of Custody Number: 120931

			LAB ID:	797757	797758				GUIDELINE		
			Sample Date:	2010-05-18	2010-05-18						
			Sample ID:	TW1-SA6	TW1-SA7				ODWSOG		
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Total Coliforms	CFU/100mL			6	6				MAC	0	CFU/100mL
Escherichia Coli	CFU/100mL			0	0				MAC	0	CFU/100mL
Heterotrophic Plate Count	CFU/1mL			24	1						
Faecal Coliforms	CFU/100mL			0	0						
Faecal Streptococcus	CFU/100mL				0						

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL: _____
Krista Quantrill
Drinking Water Coordinator

REPORT OF ANALYSIS

EXOVA Accutest

Client: Houle Chevrier Engineering
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: Mr. James McEwen

Report Number: 1010894
Date: 2010-05-27
Date Submitted: 2010-05-18

Project: 10-025-2

Chain of Custody Number: 120931

P.O. Number:
Matrix: Water

			LAB ID:	797755	797756				GUIDELINE		
			Sample Date:	2010-05-18	2010-05-18						
			Sample ID:	TW1-SA6	TW1-SA7				ODWSOG		
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Alkalinity as CaCO3	mg/L	5	237	238					OG	500	mg/L
Chloride	mg/L	1	82	130					AO	250	mg/L
Colour	TCU	2	<2	<2					AO	5	TCU
Conductivity	uS/cm	5	800	1050							
Dissolved Organic Carbon	mg/L	0.5	1.7	1.3					AO	5	mg/L
Fluoride	mg/L	0.1	1.68	2.12					MAC	1.5	mg/L
Hydrogen Sulphide	mg/L	0.01	0.17	0.75					AO	0.05	mg/L
N-NH3 (Ammonia)	mg/L	0.02	0.26	0.32							
N-NO2 (Nitrite)	mg/L	0.1	<0.10	<0.10					MAC	1.0	mg/L
N-NO3 (Nitrate)	mg/L	0.1	<0.10	<0.10					MAC	10.0	mg/L
pH			8.22	8.29						6.5-8.5	
Phenols	mg/L	0.001	0.002	0.005							
Sulphate	mg/L	1	45	76					AO	500	mg/L
Tannin & Lignin	mg/L	0.1	0.1	0.4							
Total Dissolved Solids (COND - CALC)	mg/L	5	520	683					AO	500	mg/L
Total Kjeldahl Nitrogen	mg/L	0.1	0.25	0.38							
Turbidity	NTU	0.1	11.2	22.9					MAC	1.0	NTU
Hardness as CaCO3	mg/L	1	128	121					OG	100	mg/L
Ion Balance		0.01	1.00	1.01							
Calcium	mg/L	1	30	27							
Magnesium	mg/L	1	13	13							
Potassium	mg/L	1	5	5							
Sodium	mg/L	2	123	177					AO	200	mg/L
Iron	mg/L	0.03	0.16	0.08					AO	0.3	mg/L
Manganese	mg/L	0.01	<0.01	<0.01					AO	0.05	mg/L

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

APPENDIX K

APPENDIX K

POST-HYDRO FRACTURING SUPPLEMENTAL WATER TEST RESULTS

EXOVA ACCUTEST REPORTS OF ANALYSES

REPORT OF ANALYSIS

Exova Accutest

Client: **Houle Chevrier Engineering**
180 Wescar Lane, R.R. #2
Carp, ON
K0A 1L0
Attention: **Mr. James McEwen**

Report Number: 1012849
Date: 2010-06-10
Date Submitted: 2010-06-09
Project: 10-11025-2
P.O. Number:
Matrix: Water

Chain of Custody Number: **120933**

			LAB ID:	803539	803540				GUIDELINE		
			Sample Date:	2010-06-09	2010-06-09				ODWSOG		
			Sample ID:	TW1-B3	TW1-B4						
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Total Coliforms	CFU/100mL		0	0					MAC	0	CFU/100mL

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Jennifer Mitchell
Microbiology Lab Supervisor

APPENDIX L

APPENDIX L

CORRESPONDANCE WITH LOCAL MEDICAL OFFICER OF HEALTH

Houle Chevrier Engineering

Houle Chevrier Engineering Ltd.
180 Wescar Lane, R.R. 2, Carp, Ontario, K0A 1L0
Ph: (613) 836-1422 Fax: (613) 836-9731

Facsimile Transmission

Date Sent: **June 7, 2010** **Our Ref: 10-025**

To: **Jean Guy Albert**
Ottawa Public Health

Fax No.: **613-580-9648**

From: **James McEwen, B.Sc., B.Eng.**

RE: **FLUORIDE AND SODIUM CONCENTRATIONS IN PRIVATE WELL, 2037 MCGEE SIDE ROAD, CARP, ONTARIO**

Total number of pages (including this cover page): 1

As per the Ontario Drinking Water Standards, this facsimile is to inform you of fluoride concentrations exceeding 1.5 milligrams per litre and sodium concentrations exceeding 20 mg/L that were detected during routine sampling of the private well located at the above referenced site in March 2010. The analytical results are summarized as follows:

- Feb. 19, 2010 – Fluoride Concentration = 3.17 mg/L; Sodium Concentration = 125 mg/L
- March 5, 2010 – Fluoride Concentration = 2.71 mg/L
- March 16, 2010 - Fluoride Concentration = 2.94 mg/L
- March 18, 2010 - Fluoride Concentration = 3.32 mg/L

The test well was hydro fractured on April 30, 2010 to improve the water quality. Subsequent testing is summarized as follows:

- May 5, 2010 - Fluoride Concentration = 1.93 mg/L
- May 18, 2010 - Fluoride Concentration = 1.68 to 2.12 mg/L; Sodium Concentration = 123 to 177 mg/L

The 2037 McGee Side Road property is occupied by the Highland Park Cemetery and owned by Pinecrest Remembrance Services Ltd. (Pinecrest). The water well is currently not connected to a building or currently in use.

We trust that this information is satisfactory. Should you have any questions or concerns regarding these sample results, please do not hesitate to call the undersigned.

Yours truly,

HOULE CHEVRIER ENGINEERING LTD.

James McEwen, B.Sc., B.Eng.
Hydrogeologist

Ottawa | Public Health
Santé publique

June 9, 2010

James McEwen
Houle Chevrier Engineering Ltd.
180 Wescar Lane
R.R. 2
Carp, ON K0A 1L0

Dear Mr. McEwen,

Re: Drinking Water Advisory
2037 McGee Side Road, Carp

In your June 7, 2010 letter to Ottawa Public Health you indicated that the analyses of water samples taken from a well located at 2037 McGee Side Road, Carp show that the concentration of Fluoride in the water is in the range of 1.68 to 2.12 mg/L, and that the concentration of Sodium in the water is in the range of 123 to 177 mg/L. It is our understanding that the well is presently not connected to a building and that it is not in use. Should the well be activated, the below cited information must be shared with the people who will use the well water for consumption purposes.

The Maximum Acceptable Concentration for Fluoride in drinking water is 1.5 mg/L however, where water supplies contain naturally occurring Fluoride at concentrations above 1.5 mg/L but below 2.4 mg/L, the Ontario Ministry of Health recommends that people who consume the water be informed of the Fluoride concentration, and be advised to control excessive exposure to Fluoride from other sources, such as from Fluoride treatments, or from Fluoride supplements.

The health-based advisory concentration for Sodium in drinking water is 20 mg/L. People who are on a Sodium-restricted diet or suffering from hypertension, congestive heart disease or kidney disease, should consult with their physician regarding the use of the water for consumption purposes.

If you have any questions regarding this letter, please contact me at 613 580-6744 ext. 23653.

Yours truly,

Jean-Guy Albert
Program Manager
Ottawa Public Health

cc: File

Environment and Health Protection Division / Division de la protection de la santé et de l'environnement
Ottawa Public Health / Santé publique Ottawa
100 Constellation Crescent / 100, croissant Constellation
Ottawa, ON K2G 6J8

ottawa.ca/health | ottawa.ca/sante | 613-580-6744
Fax / télec. : 613-580-9648

APPENDIX M

APPENDIX M

THEIS ANALYSIS

AQUIFER TEST PRO

Houle Chevrier Engineering

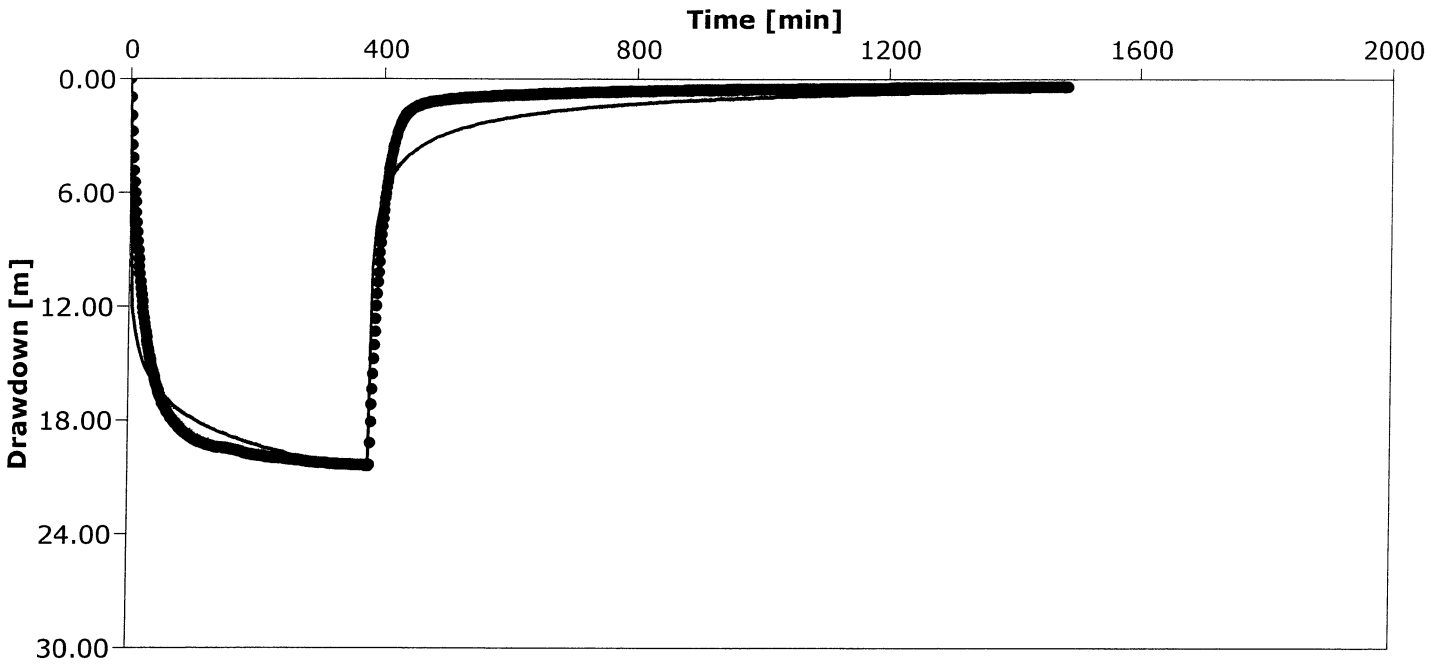
Pumping Test Analysis Report

Project: Highland Park Hydrogeological Assessment

Number: 10-025-2

Client: Pinecrest Remembrance Services Ltd.

Location: 2037 McGee Side Road, Ottawa, Ontario	Pumping Test: Pumping Test 1	Pumping Well: TW1
Test Conducted by:		Test Date: 5/27/2010
Analysis Performed by: JM	Theis Analysis	Analysis Date: 5/27/2010
Aquifer Thickness:	Discharge: variable, average rate 0.0043434 [m³/min]	



Calculation after Theis

Observation Well	Transmissivity [m²/d]	Storage coefficient	Radial Distance to PW [m]	
TW1a	1.31×10^{0}	1.15×10^{-3}	0.15	

APPENDIX N

APPENDIX N

OFFSITE PRIVATE WATER WELL RECORDS

ONTARIO MINISTRY OF ENVIRONMENT

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
03(010)	18 421578 5017602[W]	2008/01 1119	00	0256 0270	008 / 083 005 / 1:0	DO		7104179 (Z61198) A072334 SAND GRVL 0040 GREN LMSN 0280
HUNTLEY TOWNSHIP CON 01(010)	18 423466 5019312[W]	1966/06 4806	04 04	SU 0370 SU 0410 SU 0185	020 / 152 015 / 1:0	ST DO		1503027 () BLUE CLAY 0026 GREY LMSN 0416
HUNTLEY TOWNSHIP CON 01(010)	18 423525 5019433[L]	2003/10 3323	06 06	UK 0350 UK 0450	025 / 300 004 / 1:0	DO		1534376 (264065) BRWN SAND 0003 GREY GRNT 0460
HUNTLEY TOWNSHIP CON 01(010)	18 423525 5019433[L]	2001/11 6574	06 06	UK 0240 UK 0460	004 / 450 005 / 8:0	DO		1532619 (237065) BLCK LOAM WBRG 0002 GREY CLAY PCKD 0019 BLUE CLAY GRVL STNS 0031 BLCK GRNT HARD 0320 GREY GRNT QTZ HARD 0440 WHIT GRNT HARD 0500
HUNTLEY TOWNSHIP CON 01(011)	18 423127 5019896[L]	1987/10 1558	06 06	FR 0041	026 / 035 020 / 2:0	DO		1522188 (25112) BRWN CLAY PCKD 0012 GREY CLAY SOFT WBRG 0035 GREY LMSN MGRD HARD 0070
HUNTLEY TOWNSHIP CON 01(011)	18 421530 5018621[W]	1982/06 3504	06	FR 0125	026 / 120 020 / 0:30	DO		1517897 () BLUE CLAY 0008 BLCK GRNT 0128
HUNTLEY TOWNSHIP CON 01(011)	18 423655 5020188[W]	1975/03 1558	06 06	FR 0340	020 / 250 001 / 1:0	DO		1514591 () GREY CLAY BLDR PCKD 0015 GREY HPAN GRVL BLDR 0049 GRNT HARD 0398
HUNTLEY TOWNSHIP CON 01(011)	18 423122 5019897[L]	2002/10 6574	06 06	FR 0145	004 / 026 150 / 20:0	DO	0141 04	1533590 (253934) GREY CLAY HARD PCKD 0026 BLUE CLAY SOFT 0139 GREY SAND STNS GRVL 0155
HUNTLEY TOWNSHIP CON 01(011)	18 423127 5019896[L]	1997/11 1558	06 06 06	UK 0116	015 / 250 001 / 1:0	DO		1529722 (182713) BRWN LOAM STNS 0004 GREY GRNT MGRD HARD 0110 GREY GRNT HARD 0125 WHIT GRNT MGRD 0220 GREY GRNT HARD VERY 0300
HUNTLEY TOWNSHIP CON 01(012)	18 422728 5020358[L]	1998/12 1558	06 06 06	UK 0242 UK 0187	011 / 075 001 / 1:0	ST		1530432 (194809) BRWN CLAY STNS PCKD 0018 GREY GRNT SOFT 0139 GREY GRNT HARD 0250
HUNTLEY TOWNSHIP CON 01(012)	18 422724 5020358[L]	2003/09 1558	06	UK 0103	021 / 043 008 / 4:0	DO		1534200 (264708) BRWN SAND 0010 BRWN CLAY 0018 GREY CLAY STNS 0088 GREY SAND GRVL BLDR 0103
HUNTLEY TOWNSHIP CON 01(012)	18 422728 5020358[L]	1998/12 1558	06 06	UK 0187 UK 0137 UK 0123	015 / 100 025 / 1:0	ST		1530431 (194808) BRWN CLAY PCKD 0021 GREY CLAY STKY 0037 GREY CLAY 0045 GREY CLAY PCKD 0054 GREY LMSN 0200
HUNTLEY TOWNSHIP CON 01(012)	18 422728 5020358[L]	1998/12 1558	06 06	UK 0125 UK 0275	004 / 275 003 / 1:0	ST		1530430 (194807) BRWN CLAY PCKD 0012 GREY CLAY STKY 0050 GREY CLAY 0090 GREY CLAY SNDY STNS 0102 GREY SAND GRVL PCKD 0114 GREY GRNT HARD 0185 GREY GRNT 0225 GREY GRNT HARD 0300
HUNTLEY TOWNSHIP CON 01(012)	18 422728 5020358[L]	1998/11 3323	06	FR 0220	012 / 225 010 / 1:30	DO		1530420 (191221) GREY CLAY 0011 BLCK GRNT 0225

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP CON 01(014)	18 421631 5020432[W]	1967/05 3601	05	FR 0064	012 / 018 008 / 3:0	DO		1503034 () CLAY LOAM 0062 GRVL 0064
HUNTLEY TOWNSHIP CON 02(008)	18 423726 5018048[W]	2004/09 4879	06	0124	006 / 020 012 / 1:0	DO		1535002 (Z10644) A010620 GREY CLAY DNSE 0008 GREY CLAY SOFT 0018 GREY SAND 0020 GREY GRVL SNDS 0027 BRWN LMSN 0134
HUNTLEY TOWNSHIP CON 02(008)	18 423303 5017601[L]	2001/07 3323	06	SU 0050 SU 0250	005 / 260 008 / 1:0	DO		1532109 (223516) GREY CLAY 0018 BRWN GRVL 0019 GREY SHLE LMSN 0260
HUNTLEY TOWNSHIP CON 02(008)	18 423307 5017600[L]	1991/05 1558	06 06	UK 0289	025 / 200 002 / 1:0	DO		1525420 (100071) BRWN CLAY SAND DRY 0008 GREY HPAN BLDR PCKD 0028 GREY LMSN SOFT 0298
HUNTLEY TOWNSHIP CON 02(008)	18 423307 5017600[L]	1991/06 1558	06 06	UK 0219	030 / 175 003 / 1:0	DO		1525480 (101330) BRWN CLAY STNS PCKD 0006 GREY GRVL SAND WBRG 0015 GREY LMSN MGVL 0223
HUNTLEY TOWNSHIP CON 02(008)	18 423303 5017601[L]	2001/10 1558	06 06	UK 0025 UK 0045	004 / 025 015 / 1:0	DO		1532401 (230284) BRWN SAND 0005 GREY SAND GRVL BLDR 0018 GREY GRVL FCRD ROCK 0024 GREY LMSN 0050
HUNTLEY TOWNSHIP CON 02(008)	18 423307 5017600[L]	1992/09 1558	06 06	UK 0243 UK 0049	006 / 200 005 / 1:30	DO		1526582 (60325) BRWN CLAY SNDY STNS 0005 GREY SAND BLDR 0016 GREY LMSN 0250
HUNTLEY TOWNSHIP CON 02(009)	18 422890 5018910[L]	1998/06 4875	06 06 05	UK 0164	006 / 007 012 / 3:0	DO		1530148 (178950) GREY CLAY TILL BLDR 0029 GREY LMSN SHLE 0166
HUNTLEY TOWNSHIP CON 02(009)	18 422911 5018061[L]	1992/02 5222	06 06	FR 0042 FR 0135 FR 0167	016 / 180 004 / 2:0	DO		1527785 (110451) FILL PCKD 0004 BRWN CLAY SNDY DNSE 0012 GREY CLAY SLTY DNSE 0018 BLCK TILL LYRD 0025 BLCK HPAN LYRD 0030 GREY LMSN SOFT 0190
HUNTLEY TOWNSHIP CON 02(009)	18 422911 5018061[L]	1994/05 5222	06 06	FR 0032 FR 0043	005 / 025 050 / 2:0	CO		1528599 (152991) BRWN FSND 0003 BRWN CLAY SNDY DNSE 0006 BRWN CLAY SNDY DNSE 0016 BLCK TILL LYRD 0020 BLCK HPAN PCKD 0023 BLCK LMSN FCRD 0026 BLCK LMSN MGRD HARD 0050
HUNTLEY TOWNSHIP CON 02(009)	18 423390 5018396[W]	1974/08 3658	06 06	FR 0250 FR 0302	027 / 220 008 / 2:0	DO		1514640 () BRWN SAND 0007 GREY LMSN 0245 BLCK LMSN 0305
HUNTLEY TOWNSHIP CON 02(009)	18 422530 5017921[W]	1983/12 1558	06 06	FR 0185 FR 0209	075 / 170 004 / 1:0	DO		1518822 () BRWN CLAY PCKD 0012 GREY CLAY PCKD 0023 GREY SAND PCKD 0060 BRWN SAND PCKD 0071 BRWN SAND BLDR GRVL 0096 GREY GRNT LYRD HARD 0215
HUNTLEY TOWNSHIP CON 02(009)	18 423491 5018329[W]	1973/11 3504	06	FR 0090	020 / 075 005 / 0:30	DO		1513685 () BLCK FILL 0002 LMSN 0105
HUNTLEY TOWNSHIP CON 02(009)	18 422671 5018022[W]	1952/02 4832	04 04	FR 0065 FR 0158 FR 0176	023 / 085 003 / 1:0	DO		1503063 () PRDR 0052 LMSN 0179

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP CON 02(009)	18 422911 5018061[L]	1989/03 1558	06 06	SU 0110 SU 0195 SU 0065	012 / 120 003 / 1:0	DO		1523383 (50709) GREY GRVL BSLT PCKD 0016 GREY LMSN 0200
HUNTLEY TOWNSHIP CON 02(010)	18 422251 5017922[W]	1978/06 1558	06 06	FR 0235	025 / 085 010 / 1:0	DO		1516528 () BRWN SAND GRVL BLDR 0014 GREY LMSN SOFT 0179 BLCK LMSN 0237
HUNTLEY TOWNSHIP CON 02(010)	18 422311 5018132[W]	1965/11 1503	05 05	SU 0070 SU 0095	025 / 075 003 / 1:0	DO		1503066 () GRVL BLDR 0005 LMSN 0100
HUNTLEY TOWNSHIP CON 02(010)	18 421891 5018222[W]	1962/04 4825	04 04	FR 0120	016 / 018 006 / 1:0	DO		1503065 () CLAY 0002 LMSN 0120
HUNTLEY TOWNSHIP CON 02(010)	18 421951 5018122[W]	1960/03 4832	04 04	FR 0178	020 / 021 005 / 0:30	DO		1503064 () CLAY LOAM 0004 GREY LMSN 0180
HUNTLEY TOWNSHIP CON 02(010)	18 422515 5018528[L]	1988/05 5222	06	FR 0165	045 / 100 025 / 4:0	DO		1523227 (32740) GREY CLAY HARD 0030 GREY SILT SNDY 0090 GREY FSND CLAY LYRD 0150 GREY GRVL STNS PCKD 0168
HUNTLEY TOWNSHIP CON 02(010)	18 421930 5018421[W]	1980/10 3644	06	FR 0080	025 / 080 004 / 1:0	DO		1517377 () GREY CLAY STNS 0012 GREY LMSN SHLY 0084
HUNTLEY TOWNSHIP CON 02(010)	18 422515 5018528[L]	1993/12 1558	06 06	UK 0074 UK 0147 UK 0132	014 / 085 008 / 1:0	DO		1527642 (138065) BRWN LOAM STNS 0004 GREY LMSN SOFT 0155
HUNTLEY TOWNSHIP CON 02(010)	18 422371 5017907[W]	2007/01 6574	06	FR 0032 FR 0038	017 / 019 029 / 1:0	DO		7042385 (Z42180) A045206 BRWN SAND 0003 GREY SHLE CLAY LYRD 0010 GREY HPAN BLDR 0016 0040
HUNTLEY TOWNSHIP CON 02(010)	18 422515 5018528[L]	1994/05 5222	06 06	FR 0189 FR 0140	018 / 175 003 / 2:0	DO		1528596 (149574) BRWN SAND STNS CLAY 0007 GREY LMSN MGRD HARD 0110 GREY LMSN HARD MGRD 0150 GREY LMSN HARD 0200
HUNTLEY TOWNSHIP CON 02(011)	18 422111 5018993[L]	1995/09 1504	06	FR 0030 FR 0060 FR 0100 FR 0280 FR 0140	020 / 302 004 / 1:0	DO		1528925 (158976)
HUNTLEY TOWNSHIP CON 02(011)	18 422107 5018994[L]	2001/03 1119	06 06 08	FR 0050 FR 0061 FR 0070 FR 0073	008 / 070 022 / 1:0	DO		1531962 (229487) CLAY 0001 GREY LMSN 0081
HUNTLEY TOWNSHIP CON 02(011)	18 421921 5018437[W]	2007/08 1119	00	0340 0485	019 / 115 006 / 1:0	DO		7050820 (Z60149) A049703 SAND GRVL 0014 GREY LMSN 0500
HUNTLEY TOWNSHIP CON 02(011)	18 421721 5018422[W]	1961/05 4833	04 04	FR 0098	010 / 020 005 / 0:30	DO		1503068 () CLAY LOAM 0014 GREY LMSN 0100

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP CON 02(011)	18 421766 5018362[W]	1962/05 4825	04 04	FR 0125	020 / 055 006 / 1:30	DO		1503069 () PRDR 0070 LMSN 0130
HUNTLEY TOWNSHIP CON 02(011)	18 421781 5018487[W]	1964/06 4806	06 06	FR 0105 FR 0071	020 / 090 008 / 1:0	DO		1503070 () LOAM 0004 GREY LMSN 0105
HUNTLEY TOWNSHIP CON 02(011)	18 422591 5019102[W]	1969/05 4806	06 06	FR 0136 UK 0475	015 / 288 004 / 1:0	ST DO		1510501 () HPAN SHLE 0004 GREY LMSN 0506
HUNTLEY TOWNSHIP CON 02(011)	18 421851 5018392[W]	1969/07 4806	06	FR 0073 FR 0121	021 / 080 010 / 1:0	DO		1510511 () GREY SHLE 0009 GREY LMSN 0121
HUNTLEY TOWNSHIP CON 02(011)	18 421631 5018542[W]	1972/05 3644	05	FR 0139	022 / 070 005 / 1:0	DO		1511759 () GREY CLAY GRVL 0011 GREY LMSN 0139
HUNTLEY TOWNSHIP CON 02(011)	18 421631 5018548[W]	1972/05 1558	06 06	FR 0090 FR 0138	020 / 075 007 / 1:0	DO		1511921 () BRWN SAND FILL 0003 BRWN SAND STNS 0009 GREY LMSN 0141
HUNTLEY TOWNSHIP CON 02(011)	18 421671 5018532[W]	1968/09 4806	06 06	FR 0063 FR 0129	010 / 129 006 / 1:0	DO		1512382 () SHLE 0010 GREY LMSN 0129
HUNTLEY TOWNSHIP CON 02(011)	18 421943 5018748[W]	1974/07 1558	06 06	FR 0044 FR 0060	025 / 040 030 / 1:0	DO		1514247 () BRWN CLAY SAND PCKD 0006 GREY HPAN BLDR HPAN 0030 GREY LMSN FCRD 0033 GREY LMSN 0062
HUNTLEY TOWNSHIP CON 02(011)	18 421830 5018321[W]	1977/08 1365	06 06	FR 0041	007 / 030 020 / 2:0	DO		1516282 () BRWN CSND BLDR 0021 WHIT SNDS CGRD 0050
HUNTLEY TOWNSHIP CON 02(011)	18 421731 5018522[W]	1978/06 3644	06	FR 0060	020 / 050 006 / 1:0			1516579 () GREY HPAN GRVL 0010 GREY SHLE GRVL 0042 GREY LMSN 0064
HUNTLEY TOWNSHIP CON 02(011)	18 421630 5018521[W]	1980/10 1558	06 06	UK 0048 UK 0145	020 / 040 010 / 1:0	DO		1517526 () BRWN SAND STNS FILL 0004 BRWN CLAY BLDR SNDY 0013 GREY LMSN SOFT 0150
HUNTLEY TOWNSHIP CON 02(011)	18 421930 5018521[W]	1981/09 1558	06 06	SU 0290 FR 0030	020 / 125 005 / 1:0	DO		1517781 () BRWN SAND BLDR 0015 GREY LMSN 0250 BLCK LMSN 0298
HUNTLEY TOWNSHIP CON 02(011)	18 421630 5018521[W]	1984/06 1558	06 06	SU 0155 SU 0250	020 / 060 015 / 1:0	ST		1519074 () BRWN SAND PCKD 0004 GREY SAND GRVL PCKD 0008 GREY LMSN SOFT 0012 GREY LMSN MGRD 0260
HUNTLEY TOWNSHIP CON 02(011)	18 422111 5018993[L]	1988/06 5222	06	FR 0165	048 / 165 018 / 3:0	DO		1523225 (32745) GREY CLAY HARD 0040 BLUE CLAY SOFT 0090 GREY CLAY SAND LYRD 0155 BRWN GRVL PCKD 0169
HUNTLEY TOWNSHIP CON 02(012)	18 421715 5019458[L]	 5222	06 06	SU 0190 FR 0145	/ 006 / 2:0	DO		1524583 (84304) BRWN SAND SLTY PCKD 0005 BRWN SAND PCKD 0015 GREY HPAN BLDR PCKD 0027 GREY SILT 0030 GREY LMSN HARD 0200

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP CON 02(012)	18 421715 5019458[L]	1988/08 5222	06	FR 0163	/ 075 025 / 2:0	DO		1523175 (39009) BRWN CLAY SNDY PCKD 0018 GREY CLAY PCKD 0050 GREY CLAY SILT 0115 GREY SILT CLAY LYRD 0155 BRWN SAND GRVL CGVL 0165
HUNTLEY TOWNSHIP CON 02(012)	18 421096 5018982[W]	2005/11 6574	40 35	FR 0026	021 / 021 022 / 1:0	CO	0026 02	1536029 (Z28740) A035191 BRWN SAND 0016 GREY CLAY 0026 GREY GRVL 0029 GREY LMSN 0029
HUNTLEY TOWNSHIP CON 02(014)	18 420926 5020378[L]	1994/09 1558	06 06	UK 0133	035 / 071 005 / 7:0	DO		1528326 (147747) BRWN CLAY 0008 GREY CLAY 0130 GREY SAND WBRG 0146 GREY LMSN 0298 GREY LMSN 0330
HUNTLEY TOWNSHIP CON 02(014)	18 420925 5020379[L]	1987/08 3644	06 06	FR 0140 FR 0158	030 / 150 006 / 1:0	DO		1521605 (08606) GREY CLAY 0012 GREY SAND GRVL STNS 0035 GREY GRNT 0165
HUNTLEY TOWNSHIP CON 02(014)	18 420926 5020378[L]	1988/04 5222	06 06	FR 0151	042 / 075 060 / 2:0	DO	0151 03	1523230 (32730) BRWN LOAM PCKD 0001 BLUE CLAY PCKD 0082 BRWN CLAY SLTY SAND 0140 GREY FSND SLTY LYRD 0145 GREY MSND MGVL 0155 BLCK LMSN
HUNTLEY TOWNSHIP CON 02(014)	18 420926 5020378[L]	1985/09 5222	06	FR 0142	018 / 050 050 / 2:0	DO		1520122 () BRWN LOAM STNS PCKD 0004 BLUE CLAY SOFT 0120 GREY SAND STKY 0140 GREY GRVL SAND PCKD 0145
HUNTLEY TOWNSHIP CON 02(014)	18 420926 5020378[L]	1985/10 5222	06 06	FR 0140 FR 0170	038 / 140 020 / 4:0	DO	0140 03	1520195 () GREY CLAY STKY 0130 GREY SAND CGRD 0152 GREY LMSN SOFT 0175
HUNTLEY TOWNSHIP CON 03(009)	18 422291 5017602[W]	1961/03 4824	04 04	FR 0082	015 / 020 005 / 0:30	DO		1503122 () RED MSND 0038 GREY LMSN 0082
HUNTLEY TOWNSHIP CON 03(009)	18 422360 5017601[W]	1974/02 3658	06 06	FR 0076	006 / 020 030 / 2:0	DO		1514027 () BRWN SAND LOOS 0008 GREY GRVL BLDR PCKD 0028 GREY LMSN HARD 0078
HUNTLEY TOWNSHIP CON 03(010)	18 421807 5018216[W]	1972/10 1558	06 06	FR 0124	025 / 075 010 / 1:0	DO		1512118 () GREY GRVL SAND 0015 GREY LMSN 0125
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1988/10 3644	06 06	FR 0115	018 / 110 003 / 1:0	DO		1523098 (27144) GREY CLAY 0023 GREY CLAY GRVL 0035 GREY LMSN 0143
HUNTLEY TOWNSHIP CON 03(010)	18 421489 5017618[L]	2001/06 4875	05	UK 0148	006 / 012 012 / 1:0	DO		1532014 (221765) GREY LMSN SHLE 0151
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1988/11 3644	06 06	FR 0117	015 / 080 009 / 1:0	CO		1523096 (27167) GREY GRVL 0018 GREY LMSN 0123
HUNTLEY TOWNSHIP CON 03(010)	18 422018 5017602[W]	2006/12 1119	06	0066 0073	015 / 015 020 / 1:0	NU		7040818 (Z55593) A043542 SAND GRVL 0052 GREY LMSN 0080
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1985/06 3142	06 06	FR 0063	012 / 025 040 / 4:0	DO		1519825 () BRWN SAND SILT PCKD 0012 BLUE CLAY SAND LOOS 0027 GREY SAND GRVL PCKD 0031 GREY LMSN PORS 0065

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1988/10 3644	06 06	FR 0057	004 / 040 020 / 1:0	DO		1523099 (27138) BRWN SAND 0018 GREY GRVL 0040 GREY LMSN 0063
HUNTLEY TOWNSHIP CON 03(010)	18 421624 5018051[W]	2006/02 1558	06	0118 0060		DO		1536296 (Z39257) A035418 BRWN LOAM STNS PCKD 0004 BRWN SNDS 0023 GREY SNDS STNS 0044 GREY LMSN 0123
HUNTLEY TOWNSHIP CON 03(010)	18 421901 5017612[W]	2006/03 1119	06	0073	010 / 063 015 / 1:0	NU		1536342 (Z39913) A023024 SAND CLAY GRVL 0042 GREY QTZ LMSN 0080
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1991/08 4879	06 06	FR 0123	006 / 147 004 / 1:0	DO		1525580 (108220) BRWN SAND 0002 GREY SAND 0044 RED GRVL 0047 GREY LMSN 0148
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1991/08 4879	06 06	FR 0160	006 / 297 002 / 1:0	DO		1525581 (108219) BRWN SAND 0002 GREY SAND 0046 RED GRVL 0048 GREY LMSN FCRD 0049 GREY LMSN 0298
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	5222	06 06	FR 0060	008 / 055 010 / 2:0	DO		1524267 (39039) BRWN SAND GRVL LOOS 0016 GREY SILT CLAY WBRG 0036 GREY LMSN MUCK HARD 0067
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1991/06 5222	06 06	FR 0028 FR 0046	004 / 030 015 / 2:0	DO		1525531 (095455) GREY SAND PCKD 0005 GREY CLAY SNDY 0020 GREY GRVL STNS PCKD 0025 GREY LMSN 0052
HUNTLEY TOWNSHIP CON 03(010)	18 421230 5017621[W]	1983/08 3142	06 06	FR 0055	012 / 021 040 / 2:0	DO		1518465 () RED SAND 0003 GREY SAND BLDR PCKD 0026 GREY LMSN 0057
HUNTLEY TOWNSHIP CON 03(010)	18 421493 5017616[L]	1988/10 3644	06 06	FR 0055	015 / 040 020 / 1:0	DO		1523097 (27143) RED SAND 0009 GREY SAND 0020 GREY CLAY 0035 GREY HPAN STNS 0039 GREY LMSN 0063
HUNTLEY TOWNSHIP CON 03(010)	18 421230 5017721[W]	1983/08 3142	06 06	FR 0068	028 / 030 030 / 2:0	DO		1518464 () BLCK LOAM LOOS 0002 RED SAND PCKD 0010 GREY CLAY SAND LOOS 0038 GREY LMSN PORS 0072
HUNTLEY TOWNSHIP CON 03(010)	18 421530 5018021[W]	1984/09 3142	06 06	FR 0069	004 / 015 040 / 4:0	DO		1519233 () RED SAND PCKD 0006 BRWN SAND PCKD 0018 GREY SAND CLAY LOOS 0052 GREY SAND GRVL STNS 0063 GREY LMSN 0070
HUNTLEY TOWNSHIP CON 03(010)	18 421306 5017777[W]	1972/11 1558	06	FR 0037	010 / 020 020 / 1:0	DO		1512194 () BRWN SAND GRVL 0009 GREY HPAN GRVL BLDR 0034 GREY GRVL CSND 0040
HUNTLEY TOWNSHIP CON 03(011)	18 420930 5017821[W]	1979/08 1558	06 06	SU 0118	020 / 050 020 / 2:0	DO		1517263 () BRWN SAND PCKD 0017 GREY SAND STNS PCKD 0045 BLUE CLAY SAND 0072 GREY HPAN HARD 0074 LMSN PORS 0120
HUNTLEY TOWNSHIP CON 03(011)	18 421419 5018710[W]	1972/10 3503	06 06	UK 0071	010 / 016 020 / 0:30	DO		1514608 () GREY SAND STNS 0029 GREY SHLE SAND 0080

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP CON 03(011)	18 421581 5018292[W]	1969/05 4847	04 04	FR 0060	016 / 028 005 / 0:30	DO		1510221 () LOAM MSND 0008 GREY LMSN 0111
HUNTLEY TOWNSHIP CON 03(011)	18 421691 5018272[W]	1966/03 4824	04 04	FR 0080	015 / 050 003 / 1:0	DO		1503127 () GRVL 0010 LMSN 0081
HUNTLEY TOWNSHIP CON 03(011)	18 421631 5018442[W]	1964/09 4806	06 06	FR 0108 FR 0071	023 / 090 006 / 1:0	DO		1503126 () SHLE 0012 GREY LMSN 0108
HUNTLEY TOWNSHIP CON 03(011)	18 421431 5018662[W]	1962/05 4825	04 04	FR 0125	016 / 035 006 / 1:0	DO		1503125 () CLAY 0006 LMSN 0127
HUNTLEY TOWNSHIP CON 03(011)	18 421741 5018272[W]	1961/09 4833	04 04	FR 0100	020 / 025 005 / 0:30	ST DO		1503124 () CLAY LOAM 0007 GREY LMSN 0101
HUNTLEY TOWNSHIP CON 03(011)	18 421371 5018322[W]	1959/12 4833	04 04	FR 0122	016 / 030 007 / 0:30	ST DO		1503123 () CLAY LOAM 0012 GREY LMSN 0124
HUNTLEY TOWNSHIP CON 03(011)	18 420854 5018003[L]	5222	06 06	FR 0085 FR 0190	013 / 190 003 / 6:0	DO CO		1524588 (84306) BRWN LOAM PCKD 0001 BRWN CLAY SNDY PCKD 0003 GREY LMSN HARD 0200
HUNTLEY TOWNSHIP CON 03(011)	18 420949 5017761[L]	5222	06 06	FR 0025	010 / 020 005 / 2:0	DO	0025 03	1524591 (84305) BRWN FSND 0010 BRWN MSND 0030 GREY SILT CLAY 0040
HUNTLEY TOWNSHIP CON 03(011)	18 421532 5018171[L]	5222	06 06	FR 0030	010 / 030 006 / 6:0	CO	0030 03	1524587 (84307) BRWN LOAM PCKD 0001 BRWN CLAY PCKD 0005 BRWN CLAY SNDY FSND 0012 BRWN MSND 0023 BRWN SAND SILT MGRD 0028 BRWN MSND 0037
HUNTLEY TOWNSHIP CON 03(011)	18 421089 5018090[L]	1983/09 3644	06 06	FR 0075	025 / 060 020 / 1:0	DO		1518611 () GREY CLAY 0006 GREY SNDS 0080
HUNTLEY TOWNSHIP CON 03(012)	18 421227 5018949[W]	1973/04 1836	06	SU 0256	015 / 100 008 / 1:0	DO		1513273 () YLLW SAND 0020 HPAN 0032 GREY LMSN 0260
HUNTLEY TOWNSHIP CON 03(012)	18 421126 5018996[W]	1972/12 1558	06 06	SU 0080 SU 0187	010 / 050 015 / 2:0	IN		1512197 () BRWN GRVL SAND PCKD 0003 BRWN SAND PCKD 0018 GREY SAND PCKD 0032 GREY CLAY LOOS 0042 GREY SAND GRVL STNS 0047 BLCK LMSN 0188
HUNTLEY TOWNSHIP CON 03(012)	18 421151 5018922[W]	1960/09 4833	04 04	FR 0094	012 / 014 003 / 0:30	PS		1503128 () CLAY LOAM 0036 GREY LMSN 0096
HUNTLEY TOWNSHIP CON 03(013)	18 420831 5019422[W]	1978/11 1558	06 06	FR 0145	040 / 055 025 / 1:0	DO		1516828 () BRWN CLAY BLDR 0021 GREY HPAN BLDR PCKD 0035 GREY LMSN SOFT 0145
HUNTLEY TOWNSHIP CON 03(013)	18 420930 5019321[W]	1981/11 4006	06 06	FR 0083 FR 0185	008 / 200 004 / 1:0	DO		1517689 () GREY CLAY PCKD 0015 GREY SILT STNS PCKD 0057 GREY SAND CMTD 0061 GREY TILL STNS PCKD 0079 GREY GRNT MGRD 0215

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP 01(011)	18 423127 5019896[L]	1993/08 3749	06	FR 0094 FR 0083	016 / 074 030 / 1:0	DO AC		1527433 (137653) BRWN SAND STNS GRVL 0024 GREY SILT CLAY 0032 GREY GRVL 0036 BLCK GRNT SOFT 0105
HUNTLEY TOWNSHIP 01(011)	18 423127 5019896[L]	1993/08 3749	06	FR 0115 FR 0122 FR 0064	018 / 094 025 / 1:0	AC DO		1527432 (137654) BRWN SAND STNS GRVL 0027 GREY SILT GRVL 0034 GREY GRVL HPAN 0049 BLCK GRNT SOFT 0130
HUNTLEY TOWNSHIP 02(008)	18 423307 5017600[L]	1987/06 5222	06 06	FR 0047 FR 0036	003 / 020 100 / 2:0	CO		1521487 (13919) BRWN SAND CLAY PCKD 0003 GREY CLAY STNS HARD 0006 GREY LMSN FCRD 0008 GREY GRVL LMSN LOOS 0012 GREY LMSN HARD 0041 BLCK LMSN SOFT 0050
HUNTLEY TOWNSHIP 02(008)	18 422866 5017546[W]	2006/11 1119						1536847 (Z55508) 0058
HUNTLEY TOWNSHIP 02(008)	18 423270 5018146[W]	2008/06 1558	06	UK 0198	012 / 022 012 / 1:0	DO		7112979 (Z77369) A051522 BRWN HPAN BLDR PCKD 0012 GREY GRVL STNS WBRG 0016 GREY LMSN MGRD 0200
HUNTLEY TOWNSHIP 02(008)	18 423399 5018274[W]	2008/04 1558	06	UK 0366 UK 0458	017 / 208 012 / 4:0	DO		7105859 (Z77351) A051545 BRWN LOAM STNS 0003 GREY LMSN HARD 0465
HUNTLEY TOWNSHIP 02(009)	18 422911 5018061[L]	1992/07 3323	06	FR 0115	017 / 060 020 / 1:0	DO		1526956 (126336) BRWN SAND 0007 WHIT LMSN 0045 RED GRNT 0120
HUNTLEY TOWNSHIP 02(011)	18 421726 5018881[L]	1988/11 3142	06 06	UK 0158 FR 0090	015 / 140 007 / 1:30	DO		1523034 (44875) BRWN SAND BLDR PCKD 0019 GREY LMSN HARD 0090 GREY LMSN SHLE PORS 0160
HUNTLEY TOWNSHIP 03(006)	18 421648 5017568[W]	2009/05 1558	06	UK 0150 UK 0251 UK 0269	006 / 052 008 / 1:0	DO		7124492 (Z095287) A076853 BRWN LOAM SNDY 0012 GREY SAND BLDR 0020 GREY LMSN LYRD 0273
HUNTLEY TOWNSHIP 03(010)	18 421493 5017616[L]	1988/10 1558	06 06	FR 0145 FR 0170	030 / 100 006 / 1:0	DO		1523014 (38358) BRWN LOAM SNDY 0005 BRWN SAND WBRG 0012 GREY SAND 0030 GREY CLAY STNS 0042 GREY LMSN 0175
HUNTLEY TOWNSHIP 03(010)	18 421418 5017799[W]	2008/12 1558	06	0269	018 / 142 005 / 2:0	DO		7119248 (Z84466) A076810 BRWN LOAM FILL 0005 BRWN SAND LOOS 0009 GREY SAND WBRG 0015 BRWN CLAY PCKD 0027 GREY CLAY GRVL BLDR 0044 GREY LMSN MGRD 0273
HUNTLEY TOWNSHIP 03(010)	18 421805 5017734[W]	2009/08 1119	06 06	0076 0080	013 / 040 020 / 1:0	DO		7131310 (Z102574) A082479 SAND GRVL BLDR 0028 GREY LMSN 0090
HUNTLEY TOWNSHIP 03(010)	18 421567 5017859[W]	2009/10 1119						7132598 (Z102713) A089342
HUNTLEY TOWNSHIP 03(010)	18 421755 5018048[W]	2009/10 1558						7139851 (Z101735) A076883

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
HUNTLEY TOWNSHIP 03(010)	18 421477 5017754[W]	2008/05 1558	06	UK 0260 UK 0273	017 / 102 007 / 1:30	DO		7112989 (Z77368) A051521 BRWN LOAM SNDY FILL 0005 STNS BRWN LOAM SNDY 0013 BRWN CLAY PCKD HARD 0023 GREY CLAY SNDY STNS 0040 GREY LMSN DKCL LYRD 0273 MGRD
HUNTLEY TOWNSHIP 03(010)	18 421668 5017988[W]	2009/03 1558	06	0140	015 / 015 012 / 2:0	DO		7123248 (Z095326) A076799 BRWN LOAM ROCK FCRD 0004 BRWN CLAY PCKD 0014 BRWN SAND WBRG 0022 GREY TILL PCKD 0032 GREY LMSN MGRD 0140
HUNTLEY TOWNSHIP 03(010)	18 421558 5017784[W]	2009/06 1558	06	0169	016 / 042 012 / 1:0	DO		7127116 (Z095254) A076826 BRWN LOAM 0007 BRWN CLAY PCKD 0020 GREY CLAY SNDY STNS 0043 GREY LMSN 0173
HUNTLEY TOWNSHIP ()	18 420944 5019366[W]	2006/07 7241	02				0005 08	7035379 (Z51855) A046053 BRWN LOAM LOOS 0004 BRWN SAND SILT 0012 GREY CLAY SILT WBRG 0012
MARCH TOWNSHIP CON 01(008)	18 423437 5018559[W]	2007/08 1558		UK 0266	022 / 126 008 / 6:0	DO		7051249 (Z60314) A065666 BRWN SAND LOAM BLDR 0012 GREY HPAN BLDR PCKD 0040 GREY SAND CLAY 0050 GREY LMSN LYRD 0273
MARCH TOWNSHIP CON 01(011)	18 423744 5020314[W]	2004/05 1119	06	UK 0170	004 / 005 / 1:0	DO		1534651 (Z04926) A004780 SAND FILL 0004 GREY GRNT QTZ 0180
OTTAWA CITY 02(012)	18 421372 5018928[W]	2007/05 6907						7049976 (Z50987) A017504

Notes:

1. UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
2. Date Work Completed
3. Well Contractor Licence Number
4. Casing diameter in inches
5. Unit of Depth in Feet
6. See Table 4 for Meaning of Code
7. STAT LVL: Static Water Level in Feet ; PUMP LVL: Water Level After Pumping in Feet
8. Pump Test Rate in GPM, Pump Test Duration in Hour : Minutes
9. See Table 3 for Meaning of Code
10. Screen Depth and Length in feet
11. See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDY		

2. Core Color

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

3. Water Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial		
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		